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WRIGHTIA

VOLUME 6 FEBRUARY, 1978 NUMBER 1

SOME OBSERVATIONS FROM FIFTY YEARS OF EXPLORATION OF THE YUCATAN PENINSULA

CYRUS LONGWORTH LUNDELL

Since September, 1928, when I went to British Honduras as Assistant Physiologist of the Tropical Plant Research Foundation of Washington, the Yucatan Peninsula has been one of my particular areas of interest. On field trips by muleback through most of the interior, in Mexico, Guatemala, and British Honduras, and in residence at Honey Camp in northern British Honduras, Tuxpeña in Campeche, Chichen Itza in Yucatan, Coba in Quintana Roo, and in Peten at El Paso de Caballos, La Libertad and Tikal, an opportunity was afforded to observe the environmental conditions under which Maya civilization developed and flourished in the lowlands.

The Maya theocracy centered around agriculture. Plants provided the food and substance in the rise and sustenance of Maya civilization. I have been concerned in its broadest aspects with the botany of the area, which with the climatic factors, are so important to an understanding of the people and their accomplishments.

Considering only one factor, plant endemism, it is possible to conclude that the climate and vegetation of the Yucatan Peninsula have been the same as they are today throughout the millenia which man has lived in the area.

Plant endemism in specific groups, along with plant indicators and vegetation types, are associated with the rainfall pattern from dry Progreso on the north coast to the notorious Rio Gracias a Dios on the wet southeastern border of Peten. Throughout this area the lowland Maya have practiced the same type of shifting agriculture, the *milpa* system, since time immemorial.

From the desert area on the north coast of Yucatan with its endemic cacti and other xerophilous plants, through the deciduous forest to the south as typified at Chichen Itza, through the vast interior subsurface drained evergreen *Achras Zapota* L. forest of Campeche and Quintana Roo, south to the great quasi-rain forest of northern Peten, there are distinct plant associations and plant groups which serve as phytogeographical indicators. Along an east-west line south of the Belize River, Lake Peten Itza and Rio San Pedro de Martir, and in western Peten, the high rainfall supports a rain forest of Amazonian aspect, except in the savanna area around La Libertad, a Cretaceous belt extending west into Chiapas, Mexico.

In interior Yucatan, Campeche and Quintana Roo, with subterranean drainage, noticeably lacking are such groups as the palms, except for a few scattered plants. In northern Peten, palms predominate over wide areas,

mostly poorly drained, to form the *botanal (Sabal)*, *escobal (Cryosophila)* and *corozal (Orbignya)* associations, with *Bactris* in dense stands along streams, and with scattered *Desmoncus* and *Chamaedorea* species through the uplands in the *zapotal*. In wet southern Peten the giant palms are *Orbignya Cohune* (Mart.) Dahlgren and *Scheelea Lundellii* Bartlett, along with abundant representatives of other genera.

In the central interior of the Peninsula, no Melastomataceae have been recorded. Northern Peten has only six species of *Miconia* and *Clidemia*. The plants are rare and repeatedly collected! South of the east-west line centered on Lake Peten Itza, in the wet forest, Melastomataceae become one of the most conspicuous understory forest elements with a host of genera and species, some endemic. In this rain forest *Compsoneura Sprucei* (A.DC.) Warb. abounds, while it is absent to the north.

In the Sapotaceae, with which I have been concerned since 1928, the distribution of *Achras Zapota*, the true *chico zapote*, the source of the superior chicle gum of commerce, is of particular interest. Its commercial stands do not extend south of the Lake Peten Itza east-west line. But, in the transition zone, there are related *Achras* taxa in central Peten, mostly species which I refer to the genus *Manilkariopsis*. South of central Peten these give way in the true rain forest to the *chiquibul* species of my genera *Chiclea* and *Mopania*. Taxa of these have not been collected to the north of Lake Peten Itza and the Belize River, except in the wet Usumacintla River drainage to the west.

Other genera in the Sapotaceae, notably *Peteniodendron*, *Pouteria*, *Mastichodendron* and *Bumelia*, have taxa with similar distribution patterns closely correlated with rainfall.

Much of the so-called "mystery of the Maya" could be discarded by a pragmatic consideration of environmental factors which influenced the rise and fall of great Maya cultural centers for over 2000 years. The lowlands of the Yucatan Peninsula nourished the greatest period of Maya ascendance, and there is reason to believe that the population of the lowlands exceeded that of any other area of pre-Colombian America.

Abundant food produced in their shifting *milpa* agriculture was the base upon which their civilization developed. Maya religion and astronomy centered around agriculture. Agriculture was the strength and achilles' heel of this great people.

Over population — loss of soil fertility and soil erosion as a result of this pressure on the land — may well explain away the "Maya mystery" of abandoned cultural centers and the rise and development of new ones.

But, there may have been other critical factors contributing to periodical crises which led to abandonment of areas. To be considered is the fragile nature of their agricultural system, for it is entirely dependent on the April and May dry season for the burning of *milpas* to make possible the planting of crops. With over population and reduced crop yields, an errant climate, such as drouth cycles which occur on the Great Plains of the United States, could have wrought havoc in a reverse way — incessant rain without dry seasons. These rainy periods extended over years could have led to starvation, internecine warfare, and the abandonment of great centers such as Calakmul, Tikal, Uaxactun, and Copan. Series of wet

years without the dry months of April and May to burn their *milpas* would have meant critical crop failures and disaster as certainly as drouth does in other areas.

Environmental studies of the Maya area will in time contribute more to a much better understanding of the Maya and the rise and fall of their great centers of culture.

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STUDIES OF AMERICAN PLANTS – XVI

Cyrus Longworth Lundell

Type material in the Lundell Herbarium is being photographed with a plan to publish the photographs when feasible. Publication is preferable to the deposit of these in herbaria, for availability will be greater to more taxonomists and preservation will be assured in libraries worldwide. As the project develops, plates will be supplemented by text-figures detailing floral structure and other significant features. Forty plates are published herewith.

Along with the description of new Juglandaceae, Polygonaceae, Lauraceae, Euphorbiaceae and Flacourtiaceae, flowers of *Eugenia Eliasii* Lundell are described from a recent collection of this little known tree. Studies are continued in the Sapotaceae with seven new species, several transfers, a new genus, *Mopania,* and notes on additional taxa, mostly from Guatemala.

JUGLANDACEAE

Oreomunnea americana Lundell, sp. nov. Plate 1.

Arbor; ramuli graciles, minute lepidoti; folia pinnata, foliola 2 vel 3 pares, coriacea, parce lepidota, anguste lanceolata, 6–12.5 cm. longa. 1.5–2.5 cm. lata, apice caudato–acuminata, basi acuta, uniauriculata; fructa obovata, ca. 8 mm. longa, bractea trilobata, ad 6.5 cm. longa in racema elongata.

Giant tree, up to 40 m. tall, 75 cm. diam., the branchlets rather slender, blackish, sparsely and minutely lepidote; leaves opposite, pinnate, with petioles up to 4 cm. long, the leaflets 2 or 3 pairs, the terminal often appearing solitary giving the appearance of either 3 or 5 leaflets, the slender petiolules elongate, up to 7 mm. long, the blades narrowly lanceolate, up to 12.5 cm. long, 2.5 cm. diam.; apex caudate-acuminate, the acumen acutish, the base acute, inaequilateral, the inner side at base conspicuously auriculate, the incurved appressed auricle up to 2.5 mm. long, the outer side merely revolute, not auriculate; leaflets coriaceous, entire or with one or more conspicuous acute teeth on each side above the middle; the midvein elevated and rather prominent beneath, elevated as a narrow line above, the lateral nerves obscure; fruiting racemes simple, with rachis up to 9 cm. long, densely lepidote; fruits few, with short pedicels up to 3 mm. long; outer fruiting division of bract up to 6 cm. long, very sparsely lepidote, reticulate-veined, deeply 3-lobate, the central lobe linear, up to 5.5 cm. long, 8 mm. wide, rounded at apex, the lateral lobes divaricate, up to 2 cm. long, similar to median lobe; inner division of bract up to 2 cm. long, broadly rounded, the two divisions compressed over the nut and concealing it; nut obovoid, about 8 mm. long, lepidote, with four linear-spatulate perianth lobes persistent at apex, the lobes up to 2.2 mm. long, cucullate at apex, thick.

Guatemala: Dept. Baja Verapaz, Union Barrios, west of km. 161/162, in high forest on top of hill, Aug. 20, 1975, *C. L. Lundell & Elias Contreras 19701* (LL, holotype), tree, 120 ft. tall, 30 in. diam., fruit greenish with yellowish bracts, "*nogal.*"

With only 2 or 3 pairs of larger leaflets, elongated petiolules, and fruiting bracts up to 6 cm. long, *O. americana* differs in these and other features from *O. mexicana* (Standl.) Leroy. *O. pterocarpa* Oersted of Costa Rica has fruiting bracts up to 15 cm. long, and the leaflets are not auriculate. *O. americana* has a single very conspicuous auricle.

POLYGONACEAE

Coccoloba itzana Lundell, sp. nov. Plate 2.

Arbor, ad 15 m. alta, ramulis glabris, striatis; ocreis dense rufo-strigosis vel glabratis; petiolis supra basem ocrearum gerentibus, glabris, 3–7 mm. longis, crassis; lamina glabra, lanceolato-elliptica, oblongo-elliptica vel oblanceolata, 10–30 cm. longa, 4–12 cm. lata, apice subabrupte acuminata vel acuminata, basi rotundata et subcordata vel anguste rotundata et subcordata, nervis lateralibus ca. 8-jugis. *Flores staminati:* inflorescentia racemosa; ocreolae parvissimae; pedicelli graciles, ad 2 mm. longi, glabri; calyx stipitatus, lobis 4 vel 5, ovato-rotundatis, ca. 1.5 mm. longis; stamina 7, ad 2.5 mm. longa. *Flores feminei ignoti:* infructescentia racemosa, ad 20 cm. longa, minute puberula; pedicelli fructiferi ad 2.5 mm. longi; fructu ovoideo, basi rotundato et stipitato, ad 7 mm. longo, apice rotundato.

Tree up to 15 m. high, 30 cm. diam., the branchlets rather slender, glabrous; buds and ocrea at first rufous-strigose; petioles arising above base of the ocrea, glabrous, short, up to 7 mm. long; leaf blades subcoriaceous at maturity, glabrous, lanceolate-elliptic, oblong-elliptic or oblanceolate, up to 30 cm. long, 12 cm. wide, apex acuminate, base rounded and subcordate or narrowly rounded and subcordate, sometimes clasping at base, the midvein prominent, the primary lateral veins about 8 pairs, slender and equally conspicuous on both surfaces, the reticulation fine but evident. *Staminate flowers:* inflorescence racemose, slender, up to 20 cm. long, densely flowered, the rachis minutely and obscurely puberulent; ocreolae minute, inconspicuous; pedicels 1–3, up to 2 mm. long; calyx glabrous, stipitate, the 4 or 5 lobes reflexed, ovate-rounded; stamens 7, exserted. *Pistillate flowers unknown:* infructescence racemose, up to 20 cm. long, minutely puberulent; fruiting pedicels up to 2.5 mm. long; fruits ovoid, conspicuously stipitate, rounded at base and apex, up to 7 mm. long, the perianth lobes short and imbricate at apex.

Guatemala: Dept. Peten, La Cumbre, in *zapotal*, Sapurul, SWW, April 9, 1977, *C. L. Lundell & Elias Contreras 20755* (LL, holotype), tree, 45 ft. high, 12 in. diam., staminate flowers greenish, "*uva*"; La Cumbre, Caserio Sapurul, in *zapotal* bordering Arroyo Sapurul, April 7, 1977, *Lundell & Contreras 20736* (LL), tree, 35 ft. high, 8 in. diam., fruits reddish; La Cumbre, Caserio Sapurul, in *zapotal* between Las Pelotas and Sapurul, April 7, 1977, *Lundell & Contreras 20741* (LL), tree, 35 ft. high, 6 in. diam., staminate flowers greenish, "*uva.*"

C. itzana has minute inconspicuous ocreolae like *C. reflexiflora* Standl., and the petioles arise above the base as in that taxon. Affinity of the two appears probable.

Coccoloba verapazensis Lundell, sp. nov. Plate 3.

Arbor, ad 20 m. alta, ramulis glabris; folia glabra, petiolata, petiolo ad 2.2 cm. longo; lamina chartacea, elliptica vel lanceolato-elliptica, 10–22 cm. longa, 6–12 cm. lata, apice subabrupte acuminata, basi rotundata, nervis lateralibus ca. 10-jugis; inflorescentia racemosa, 10–22 cm. longa, minute puberula. *Flores feminei:* ocreolae ad 1 mm. longae, minutae puberulae; pedicelli crassi, ca. 1 mm. longi; calyx substipitatus, lobis 5, rotundatis, ca. 2 mm. longis, glabris; staminodia 8, ca. 0.8 mm. longa; ovarium glabrum; stylus 3, elongatus; pedicelli fructiferi crassi, ad 3.5 mm. longi. *Fructu* ovoideo, ad apicem obtuso.

Tree, up to 20 m. high, 45 cm. diam., the branchlets glabrous, striate, the buds densely strigose with reddish hairs, and the ocrea apparently with similar indument but glabrate early; leaves glabrous, membranaceous to chartaceous, the petioles arising from the base of the ocrea, 1–2.2 cm. long; leaf blades elliptic or widely lanceolate-elliptic, up to 22 cm. long, 12 cm. wide, the apex subabruptly acuminate, the base rounded, sometimes obtusish or truncate, the midvein prominent beneath, nearly plane at base above, the primary lateral nerves usually 10 pairs, rather slender, arcuately ascending and anastomosing near margin, the reticulation evident but not conspicuous on either surface; inflorescences racemose, up to 22 cm. long, the rachis rather stout, angled and minutely puberulent. *Pistillate flowers:* the bracts ovate, acute, equalling the ocreolae, the ocreolae membranous, up to 1 mm. long, not flaring; pedicels thick, in flower usually much shorter than ocreolae, accrescent, the flowers solitary; calyx with 5 suborbicular lobes about 2 mm. long; staminodia 8, about 0.8 mm. long along rim of disk, the abortive anthers very small; ovary glabrous, the three styles elongated, spreading; pedicels of immature fruits stout, up to 3.5 mm. long; young fruit ovoid, substipitate, with perianth lobes about one-third of length, the lobes imbricate at the obtusish apex.

Guatemala: Dept. Baja Verapez, Niño Perdido, on San Jose Espinero Road, in high forest about 4 km. north, May 21, 1977, *C. L. Lundell & Elias Contreras 20941* (LL, holotype, pistillate flowers), tree, 60 ft. high, 15 in. diam., flowers greenish, *"uva"*; Niño Perdido, on Quebrada La Lima, in high forest, 4 km., June 22, 1977, *Lundell & Contreras 21191* (LL), tree, 60 ft. high, 18 in. diam., immature fruit greenish.

Related to *C. escuintlensis* Lundell, the taxon differs in its mostly elliptic leaves, elongated pistillate racemes with the ocreolae smaller and not flaring, and the pedicels of flowers stout, shorter than ocreolae but accrescent and up to 3.5 mm. long in fruit. In the staminate flowers of the type of *C. escuintlensis* the pedicels are slender and fully twice as long as the flaring larger ocreolae.

LAURACEAE

Aniba guatemalensis Lundell, Wrightia 4: 98. 1969. Plate 4.

Guatemala: Dept. Alta Verapaz, Chahal, in high forest, 6.5 km., on El Mago, bordering Sebol Road, Oct. 15, 1968, *Elias Contreras 7941* (LL, holotype), shrub, 20 ft. high, 3 in. diam., flowers yellowish, *"laurel."* Dept.

Izabal, Puerto Mendez, on Rio Dulce Road, 10 km., in high forest, *Contreras 10244* (LL, fruits), arborescent shrub, 15 ft. high.

The cupule of *A. guatemalensis* is shallow, simple, flaring, and dentate. The pedicels are obconical, thick, and up to 1 cm. long. Ripe fruits are large, oblong-ellipsoid, up to 2.3 cm. long, 1.2 cm. in diam., rounded at apex.

Misanteca areolata (Lundell) Lundell, Wrightia 5: 317. 1976. *Licaria areolata* Lundell, Wrightia 4: 156. 1971 Plate 5.

Guatemala: Dept. Izabal, Cadenas, in high forest bordering Rio Dulce Road, 4.5 km., *Elias Contreras 10108* (LL, holotype), tree, 40 ft. high, 6 in. diam., flowers yellowish.

Misanteca caudata (Lundell) Lundell, Wrightia 1: 146. 1946. *Chanekia caudata* Lundell, Phytologia 1: 178. 1937. *Licaria caudata* (Lundell) Kosterm., Receuil Trav. bot. neerl. 34: 596. 1937. *Acrodiclidium caudatum* (Lundell) Lundell, Am. Midland Nat. 19: 428. 1938. Plate 6.

British Honduras: El Cayo District, Arenal–Valentin road, in advanced forest, June 21–22, 1936, *C. L. Lundell 6183* (LL, holotype), tree, height 7 m., diam. 7.5 cm., flowers white.

Misanteca clavata (Lundell) Lundell, Wrightia 5: 54. 1974. *Licaria clavata* Lundell, Wrightia 5: 32. 1974. Plates 7, 8.

Guatemala: Dept. Baja Verapaz, Chilasco, in high forest, on Concepcion Road, July 29, 1971, *Elias Contreras 10923* (LL, holotype; LL, isotype), tree, 20 ft. high, 3 in. diam., flowers greenish.

Misanteca conoidea (Lundell) Lundell, Wrightia 5: 54, 1974. *Licaria conoidea* Lundell, Wrightia 5: 33. 1974. Plate 9.

Guatemala: Dept. Izabal, Puerto Mendez, 19 km. on Rio Dulce Road, in high forest, Sept. 14, 1970, *Elias Contreras 10277* (LL, holotype), tree, 25 ft. high, 3 in. diam.; Puerto Mendez, 10 km. on Rio Dulce Road, in high forest, Sept. 17, 1970, *Contreras 10290* (LL), tree, 30 ft. high, 4 in. diam.

Misanteca glaberrima (Lundell) Lundell, Wrightia 1: 147. 1946. *Acrodiclidium glaberrimum* Lundell, Lloydia 4: 46. 1941. *Licaria glaberrima* (Lundell) Allen, Journ. Arn. Arb. 26: 426. 1945. Plate 10.

Mexico: Chiapas, Volcan de Tacana, north side, alt. 2100 m., April 2, 1939, *Eizi Matuda 2981* (LL, isotype), tree.

Misanteca Ibarrae Lundell, Wrightia 5: 332. 1977. *Licaria Ibarrae* (Lundell) Lundell, **comb. nov.** Plate 11.

Guatemala: Dept. Baja Verapaz, Union Barrios, in high forest on top of hill, west of km. 153/154 of Coban Road, Sept. 1, 1975, *C. L. Lundell & Elias Contreras 19780* (LL, holotype), tree, 60 ft. high, 10 in. diam., flowers yellow-green, fruit green, *"laurel"*; same locality, *Lundell & Contreras 19783* (LL), *19796* (LL).

Misanteca lucida (Lundell) Lundell, Wrightia 1: 147. 1946. *Acrodiclidium lucidum* Lundell, Contr. Univ. Mich. Herb. 7: 12. 1942. *Licaria lucida* (Lundell) Allen, Journ. Arn. Arb. 26: 431. 1945. Plate 12.

Mexico: Chiapas, Santa Rosa, near Escuintla, alt. 1600 m., in advanced forest, June 20, 1941, *Eizi Matuda 4239* (LL, isotype) tree, 10 m. high

Misanteca nayaritensis Lundell, Wrightia 5: 332. 1977. *Licaria nayaritensis* (Lundell) Lundell, **comb. nov.** Plate 13.
Mexico: Nayarit, San Blas, Jan. 4, 1944, *Efraim Hernandez X. 136* (LL, holotype), semi-recumbent shrub, fruit acorn-like. Jalisco, Puerto Vallarta, steep densely-forested hills, south of Playa Los Muertos, alt. ca. 90 m., March 28, 1959, *Annetta Carter & Francia Chisaki 1198* (LL), shrub ca. 1–1.5 m. high, cup reddish when mature.

Misanteca oblongifolia (Lundell) Lundell, Wrightia 4: 100. 1969. *Licaria oblongifolia* Lundell, Wrightia 4: 32. 1968. Plate 14.
Guatemala: Dept. Peten, Dolores, between km. 85/86, west of Machaquila Road, in *bajo*, Sept. 20, 1961, *Elias Contreras 2937* (LL, holotype), small tree, 2 in. diam., 15 ft. high, fruit green, "*laurel*."

Misanteca reclinata (Lundell) Lundell, Wrightia 4: 101. 1969. *Licaria reclinata* Lundell, Wrightia 4: 32. 1968. Plate 15.
Guatemala: Dept. Peten, Laguna Petexbatun, in high forest on the peninsula, April 2, 1964, *C. L. Lundell 18178* (LL, holotype), tree, 35 ft. high, "*laurel*."

Misanteca tikalana Lundell, Wrightia 4: 101. 1969. *Licaria tikalana* (Lundell) Lundell, Wrightia 4: 157. 1971. Plate 16.
Guatemala: Dept. Peten, Tikal National Park, in *escobal* on Uaxactun trail, Feb. 20, 1961, *Elias Contreras 1974* (LL, holotype), tree, 15 in. diam., 50 ft. high, "*laurel*."

Misanteca urceolata (Lundell) Lundell, Wrightia 4: 102. 1969. *Licaria urceolata* Lundell, Wrightia 4: 33. 1968. Plate 17.
Guatemala: Dept. Peten, Cadenas, in low forest on a rocky hill east of km. 169/170 of the Poptun Road, Aug. 19, 1966, *Elias Contreras 6005* (LL, holotype), small tree, 45 ft. high, 6 in. diam.; La Cumbre, Sapurul, vicinity of Sapurul, in *zapotal*, April 19, 1977, *C. L. Lundell & Elias Contreras 20835* (LL), *20840* (LL), flowers reddish or yellowish.

Ocotea bajapazensis Lundell, sp. nov. Plate 18.
Arbor parva, ramulis gracilibus vel crassiusculis, novellis dense cinereo-sericeis, angulatis; folia parce et minute sericea, subtus barbata, petiolata, petiolo canaliculato, 7–13 mm. longo; lamina chartacea, lanceolata vel elliptico-lanceolata, 6–18.5 cm. longa, 2.5–7.5 cm. lata, apice obtusa, basi rotundata et acutiuscula, nervus 4- 9-paribus; inflorescentia minute sericea, paniculata, 1.5–7.5 cm. longa; pedicelli 2–3.5 mm. longi; flores ad 3.5 mm. longi, subglabri; filamenta ser. I, II brevissima vel submulla; antherae suborbiculares, ca. 1 mm. longae, minute papillosae; ser. III antheris subrectangularibus; staminodia parva; ovarium glabrum.
Small tree, up to 8 m. high, the buds and tips of branchlets whitish- or grayish-sericeous; branchlets rather slender to stout, sharply angled, drying blackish; leaves persistently short-sericeous on both surfaces, especially along the midvein and nerves, the lamina nearly glabrous with age, barbate in the axils beneath, petiolate, the petioles up to 1.3 cm. long; leaf blades chartaceous, lanceolate or elliptic-lanceolate, up to 18.5 cm. long, 7.5 cm. wide, tapering to a rather broadly obtuse apex or acuminate, base usually rounded, sometimes acutish, the midvein elevated

beneath, shallowly sulcate above, the primary lateral nerves 4–9-pairs, elevated beneath, sharply arcuately ascending, the reticulation inconspicuous; inflorescence paniculate, up to 7.5 cm. long, finely but not densely sericeous, the branches angulate and flattened; pedicels short, sometimes up to 3.5 mm. long post anthesis; flowers with very short perianth tube, the segments elliptic or ovate-elliptic, about 3 mm. long, essentially glabrous on outer surface, papillate on inner surface; stamens 9, ser. I, II with ovate-rounded or suborbicular subsessile or sessile anthers fully 1 mm. long, introrsely 4-celled, inconspicuously papillate; ser. III about 1.5 mm. long, with 2 large sessile glands at base, the filaments short and thick, the anthers ovate-quadrangular, laterally 4-celled; staminodia stipe-like, small, 0.5–0.75 mm. long, sometimes with rudimentary apical cells; ovary glabrous, the style subequal.

Guatemala: Dept. Baja Verapaz, Niño Perdido, on San Jose Espinero Road, in high forest, May 21, 1977, *C. L. Lundell & Elias Contreras 20946* (LL, holotype), tree 20 ft. high, 5 in. diam., flowers white, fragrant. Five additional collections from the vicinity of Niño Perdido, *Lundell & Contreras 20884, 20886, 20887, 20897* and *21091*, all in the Lundell Herbarium, are referable to this taxon.

O. bajapazensis appears to have affinity to *O. magnifolia* (Lundell) Lundell and *O. verapazensis* Standl. & Steyerm., but differs notably in having gray-sericeous indument and differences in floral structure.

Ocotea effusoides Lundell, sp. nov. Plate 19.

Arbor glabra, ramulis gracillimis; folia glabra, petiolata, petiolo usque ad 5 mm. longo; lamina chartacea, anguste lanceolata, ad 9 cm. longa, 2 cm. lata, apice caudato-acuminata, basi acutiuscula, nervis lateralibus 10–12-jugis, reticulatis; inflorescentia glabra, paniculata, ad 9 cm. longa; flores hermaphroditi, 3 mm. longi, glabri; staminodia stipitiformia; ovarium glabrum; cupula 6-dentato-marginata.

Small tree, strictly glabrous, the slender branchlets and tender leaves drying blackish; leaves glabrous, with short slender petioles up to 5 mm. long; leaf blades chartaceous, with small glabrous domatia on lower surface, narrowly lanceolate, 5–9 cm. long, 1–2 cm. wide, apex caudate-acuminate, base acutish or obtusish, the midvein elevated beneath, plane above, the lateral nerves slender, 10–12-pairs, the reticulation evident beneath; inflorescences few-flowered, openly paniculate, very slender, 2–9 cm. long, glabrous; pedicels slender, up to 3.5 mm. long; flowers glabrous, blackish, fully 3 mm. long at anthesis, tube short, lobes erect, lanceolate, obtuse, stamens of ser. I & II with oblongish apiculate anthers subequalling filaments; ser. III with pair of sessile basal glands, the sparsely pubescent filaments longer than the slender anthers; staminodia stipitiform, about 1 mm. long, inconspicuously pubescent with short appressed hairs; ovary and style glabrous; fruiting pedicels obconic, 1–1.2 cm. long, the cupule 6-dentate, about 1 cm. in diam., the fruits ellipsoid, up to 1.8 cm. long.

Guatemala: Dept. Baja Verapaz, Niño Perdido, on San Jose Espinero Road, in high forest, 4.3 km. north, May 23, 1977, *C. L. Lundell & Elias Contreras 20948* (LL, holotype), tree, 20 ft. high, 4 in. diam., flowers yellow-green, fruit green.

Although related and easily confused with *O. effusa* (Meissn.) Hemsl., *O. effusoides* is a completely glabrous montane species with larger flowers, filaments equalling the apiculate anthers, reticulate leaves with small glabrous domatia, larger fruiting obconic pedicels, and conspicuously 6-dentate cupule up to 1 cm. wide. *O. effusa* is a sericeous taxon with small pubescent flowers only 2 mm. long, and with simple-margined small flaring cupules. I interpret *Gentle 2926* and *3266* from the Stann Creek District of Belize, collections in flower and fruit, as referable to *O. effusa*. These appear to represent the species as described by Mez in his monograph.

EUPHORBIACEAE

Alchornea guatemalensis Lundell, sp. nov. Plate 20.

Arbor; ramuli glabri; folia parva, glabra, basi glandulosa, petiolata, petiolo 5–18 mm. longo; lamina chartacea vel subcoriacea, elliptica vel obovato-elliptica, 3–8 cm. longa, 1.8–4 cm. lata, apice obtusa vel rotundata, basi obtusiuscula vel rotundata, basi 3-nervia, nervis lateralibus 3–4-jugis; flores pistillati spicati, glabri; spicae axillares, ad 4 cm. longae, stellato-puberulae; sepala 4, ovata, ad 1 mm. longa, acuta, ciliolata; ovarium biloculare, glabrum; stylus ca. 5 mm. longus.

Tree, about 20 m. tall, 37 cm. in diam., the branchlets glabrous, rather short, slender to quite thick, with short internodes; leaves small, glabrous, glandular at base, with mostly short petioles, those of lower leaves up to 1.8 cm. long; leaf blades subentire, firmly chartaceous or subcoriaceous, elliptic or sometimes obovate-elliptic, mostly small, sometimes up to 8 cm. long, 4 cm. wide, the apex broadly obtuse or rounded, base obtusish to rounded, 3-nerved at base, the lateral nerves 3- or 4-pairs, rather conspicuous beneath, finely reticulate on both surfaces; pistillate flowers sessile, spicate, the spikes solitary, axillary, up to 4 cm. long, few-flowered, finely stellate-puberulent; bracts and bractlets ovate, 1–1.2 mm. long, acute, stellate-puberulent; flowers glabrous; sepals 4, triangular-ovate, acute, about 1 mm. long, ciliolate; ovary 2-loculate, glabrous; style glabrous, up to 5 mm. long, 2-lobed almost to base.

Guatemala: Dept. Baja Verapaz, Niño Perdido, 5 km. east in high forest on top of hill, June 23, 1977, *C. L. Lundell & Elias Contreras 21201* (LL, holotype), tree, 60 ft. high, 15 in. diam.

The small glabrous leaves and glabrous flowers set *A. guatemalensis* apart from all other taxa in Mexico and Central America. *A. integrifolia* Pax & Hoffm. has been collected in the same vicinity, *Lundell & Contreras 19724* (LL), and *A. guatemalensis* may have affinity to that species but in no way could the two be confused.

FLACOURTIACEAE

Casearia itzana Lundell, sp. nov. Plate 21.

Arbor ad 23 m. alta, 36 cm. diam., glabriuscula; folia glabrata, petiolata, petiolo 4–7 mm. longo; lamina chartacea, lanceolato-oblonga vel anguste elliptico-oblonga vel oblanceolata, ad 18 cm. longa, 6 cm. lata, apice subabrupte acuminata, basi acuta, minute crenulato-serrulata;

flores fasciculati, tomentosi, pedicellis ad 1 cm. longis; calyx ad 6.5 mm. longus, segmentis lanceolatis; stamina 10, filamenta parce pilosa; ovarium hirsutum.

Tall slender tree, the branchlets slender, sparingly pubescent at first, glabrous early, drying blackish; tender leaves sparingly pubescent with short hairs along the midvein and primary lateral veins, almost glabrous at maturity, the petioles short, up to 7 mm. long; leaf blades chartaceous, lanceolate-oblong, narrowly elliptic-oblong or oblanceolate, mostly 10-18 cm. long, 4–6 cm. wide, apex acuminate, base acute or acutish, midvein elevated beneath, the primary lateral veins slender, rather sharply ascending, 6–8-pairs, the margin inconspicuously crenulate-serrulate; flowers numerous, fasciculate in the leaf axils or at defoliated nodes, the pedicels slender, up to 1 cm. long, jointed above the base, pubescent; calyx pubescent, 6–6.5 mm. long, the lobes sharply reflexed medially, lanceolate, acute, finely pubescent on inner surface; stamens 10, the filaments pilose; ovary hirsute, the stigma capitate; fruits subglobose *(Contreras 6917)*, the immature up to 2.5 cm. in diam., covered with a dense whitish tomentum, the surface sometimes tuberculate.

Guatemala: Dept. Peten, La Cumbre, in *zapotal*, west of km. 141/142 of the Peten–Izabal Road, March 1, 1975, *C. L. Lundell & Elias Contreras 19082* (LL, holotype), tree, 70 ft. high, 15 in. diam., flowers greenish.

Earlier collections of this tree were reported as *C. tacanensis* Lundell (Wrightia 5: 42. 1974), a montane species very closely related to *C. itzana*. Recent collections from the lowland rain forest of southeastern Peten, Izabal and Alta Verapaz are so consistently different from *C. tacanensis* in their essentially glabrous branchlets and leaves, often smaller flowers, and greenish-white fruits that recognition of a distinct taxon is indicated.

MYRTACEAE

Eugenia Eliasii Lundell, Phytologia 16: 443. 1968. Plates 22, 23.

Guatemala: Dept. Peten, Cadenas, on la Pedrera, on top of rocky hill, March 24, 1967, *Elias Contreras 6838* (LL, holotype), small tree, 35 ft. high, 4 in. diam., fruits dark red; La Cumbre, in *zapotal* on top of hill, Sapurul, SWW, April 10, 1977, *C. L. Lundell & Elias Contreras 20771* (LL), tree, 45 ft. high, 10 in. diam., flowers white, *"guayabillo."*

Known heretofore only from the 1967 type collection, *E. Eliasii* was found again in 1977, this time in flower.

The branchlets are finely pubescent with short appressed hairs. Its flowers, in short axillary racemes, have pedicels 3–5 mm. long, accrescent after anthesis. The pedicels, bracteoles and sepals are finely pubescent with short subappressed reddish hairs. Usually large, the free persistent bracteoles at the base of the short hypanthium are thick, narrowly lanceolate, 2–3 mm. long, acute. The 4 sepals, subequal and oblong-rounded, measure about 3 mm. in length and equally as wide at base. The thin glabrous oval petals are up to 5 mm. long. Stamens are numerous on the broad disk which is sparsely and finely pubescent, 4–5 mm. wide. The elongated style measures 8–9 mm. in length.

E. Eliasii is a very well-marked taxon notable among other distinctive features for its rounded *Clusia*-like leaves and large free lanceolate brac-

teoles. Apparently related to *E. Percivalii* Lundell, a species with very small bracteoles and large altogether different leaves.

SAPOTACEAE

Achras breviloba (Gilly) Lundell, Phytologia 16: 445. 1968. *Manilkara breviloba* Gilly, Trop. Woods 73: 19. 1943. Plate 24.

Tree, branchlets rather stout, brownish-tomentose; leaves glabrate, elliptic or oblanceolate-elliptic, up to 12 cm. long, 5 cm. wide, obtusish or rounded, rounded and acutish at base; petioles slender, up to 2.5 cm. long; pedicels and calyx tomentose; the pedicels up to 2 cm. long; sepals 6, the outer 3 broadly ovate, about 8 mm. long; corolla urceolate, about 9.75 mm. long, glabrous except for small vertical zones of pubescence on exterior surface of tube below the staminodia, the tube 5 mm. long, the 6 lobes 3.5 mm. long, elliptic, entire to shallowly 3-lobate; staminodia subequalling corolla lobes, lanceolate-elliptic above, obtuse, the free part about 2.6 mm. long, pubescent on exterior, united with corolla lobes at base about 1.5 mm.; stamens about 2.5 mm. long; anthers ovate, about 1.4 mm. long, with a dorsal line of pubescence; ovary pubescent, 9–10-loculate; style glabrous, stout, about 4.8 mm. long; stigma short-dactylose.

British Honduras: Corozal District, Northern River, Maskall, April 26, 1934, *Percy H. Gentle 1238* (NY, holotype), *"zapote blanca."*

A. breviloba belongs with the small group of species which have the staminodia united at base with the corolla lobes up to a third of their length. The connate section is above the summit of the corolla tube and level of stamen insertion. This union along the edges at base of the lobes and staminodia gives the appearance of a 12-lobed corolla.

Achras coriacea Lundell, sp. nov. Plate 25.

Arbor, usque 15 m. alta, 25 cm. diam.; ramuli crassiusculi, rufo-tomentosi; folia glabrata, petiolata, petiolo usque 2.3 cm. longo; lamina coriacea, oblongo-elliptica vel oblanceolata, 6.5 12 cm. longa, 2.5 6 cm. lata, apice obtusiuscula vel rotundata, basi acutiuscula; pedicelli rufo-tomentosi, usque 1.4 cm. longi; sepala 6, exteriora rufo-tomentosa, ovata, ca. 7 mm. longa, acuta, interiora ovato-elliptica, ca. 7.5 mm. longa; corolla 8–10 mm. longa, glabra; tubus 4–5 mm. longus; lobis 4 5 mm. longis, 3-lobatis, lobo medio spatulato, oblanceolato, vel anguste elliptico, 2–3 mm. longo, apice subtruncato, subintegro; lobis lateralibus lanceolatis, acutis; staminodia glabra vel subglabra, petaloidea, erecta, ovata, 2.5–4 mm. longa, apice bifida vel lacerata; antherae lanceolatae, 2 2.5 mm. longae, apiculatae; ovarium 10 11-loculare, hirsutum; stylus usque 6.5 mm. longus.

Tree, the branchlets rather stout, reddish-tomentose at first; leaves glabrate, with petioles up to 2.3 cm. long; leaves firmly coriaceous, oblong-elliptic or oblanceolate, up to 12 cm. long, up to 6 cm. wide, apex obtusish or rounded, base acutish; pedicels up to 1.4 cm. long, rigid, reddish-tomentose like the outer sepals; sepals 6, the outer ovate, about 7 mm. long, acute, the inner ovate-elliptic, about 7.5 mm. long; corolla glabrous, 8–10 mm. long, the tube 4–5 mm. long, the lobes 4–5 mm. long, 3-lobate;

median lobe spatulate, oblanceolate or narrowly elliptic, 2–3 mm. long, the apex subtruncate, subentire; lateral lobes (appendages) slightly shorter than median lobe, lanceolate, acute; staminodia glabrous, petaloid, erect, ovate or lanceolate, mostly 2.5–3 (4) mm. long, the apex bifid or short lacerate; stamens attached at apex of tube like the staminodia; anthers lanceolate, 2–2.5 mm. long, apiculate; ovary 10–11-loculate. pubescent; style up to 6.5 mm. long.

Guatemala: Dept. Peten, km. 20 of Ciudad Flores—Poptun Road, Santa Ana branch road, in low *zapotal*, April 23, 1977, *C. L. Lundell & Elias Contreras 20842* (LL, holotype), tree, 45 ft. high, 8 in. diam., corolla white; same locality, *Lundell & Contreras 20843* (LL).

On the San Francisco–Sebol Road, 4 to 8 km. from San Francisco, five additional collections of the taxon were made: *Lundell & Contreras 20856* (LL), *20857* (LL), *20858* (LL), *20860* (LL), and *20862* (LL). All of the collections vary from the type in minor floral features, mostly size. In *20858* and *20862* the corolla tube usually has a faint line of pubescence on the exterior below the staminodia. The staminodia of *20862* have a fine line of pubescence dorsally in some flowers. In *20843* the flowers are sometimes abnormal, the staminodia bearing partially developed anthers apically.

A. coriacea is related to *A. Tainteriana*, which grows in the same area. The broad villous staminodia of the latter, and the lobes of corolla, 3-lobate two-thirds of length, are features distinguishing *A. Tainteriana*. Except as indicated above, the corolla and androecium of *A. coriacea* are glabrous. Mature leaves are firmly coriaceous.

Achras Cortesiana (Lundell) Lundell, comb. nov. *Chiclea Cortesiana* Lundell, Wrightia 5: 318. 1976. Plate 26.

Guatemala: Dept. Peten, La Cumbre, on top of hill in *zapotal*, about 1.5 km. on Pusila Road, July 27, 1976, *C. L. Lundell & Elias Contreras 20099* (LL, holotype), tree, 80 ft. high, 18 in. diam., flowers white, "*chiquibul.*"

Achras dactylina Lundell, sp. nov. Plate 27.

Arbor, ca. 13 m. alta, 30 cm. diam.; ramuli tomentelli; folia glabrata, petiolata, petiolo usque 2 cm. longo; lamina coriacea, oblonga vel anguste elliptica, 8–12 cm. longa, 3–5 cm. lata, apice obtusiuscula, basi rotundata et acutiuscula; pedicelli 1–1.4 cm. longi, tomentelli; sepala 6, tomentella, exteriora ovata, usque 8 mm. longa, 7 mm. lata, interiora late elliptica, usque 9 mm. longa; corolla campanulata, glabra, usque 8.5 mm. longa; tubus 2.5–2.8 mm. longus; lobis late ovatis, usque 6 mm. longis, trilobatis, lobo medio oblanceolato-elliptico, 3.5–4 mm. longo, basi unguiculato, lobis lateralibus 3–3.7 mm. longis, apice obtuso-rotundatis; staminodia glabra, parva, erecta, crassa, ovata, usque 2 mm. longa, 2.5 mm. lata, subintegra, bifida vel dactylina; stamina usque 4 mm. longa; antherae usque 3.3 mm. longae, obtusae; ovarium hirsutum, 8–10-loculare.

Tree, the branchlets stout, at first tomentose with brownish hairs; leaves glabrous early, petiolate, the petioles rather short, up to 2 cm. long; leaf blades coriaceous, oblong or narrowly elliptic, up to 12 cm. long, 5 cm. wide, apex obtusish, base rounded and acutish; pedicels rather stout, up to 1.4 mm. long, brownish-tomentose like the outer sepals; sepals

6, the outer ovate, up to 8 mm. long, 7 mm. wide, the inner broadly elliptic, up to 9 mm. long; corolla campanulate, glabrous, up to 8.5 mm. long, the tube very short, up to 2.8 mm. long, the lobes broadly ovate, up to 6 mm. long and wide, trilobed to about middle, the middle lobe oblanceolate-elliptic, up to 4 mm. long, slightly longer than the lateral, somewhat unguiculate at base, the lateral lobes (appendages) imbricate, up to 3.7 mm. long, with apex obtuse-rounded and minutely erose; staminodia glabrous, small, erect, thick and fleshy, ovate or irregular, up to 2 mm. long, 2.5 mm. wide, bifid or dactylose; stamens up to 4 mm. long, the filaments thick and triangular, the anthers lanceolate, up to 3.3 mm. long, obtuse; ovary hirsute 8–10-loculate; style thick, glabrous, equalling corolla.

Guatemala: Dept. Peten, Yal-Tutu, km. 70 of Ciudad Flores–Poptun Road, in *zapotal*, April 24, 1977, *C. L. Lundell & Elias Contreras 20846* (LL, holotype), tree, 40 ft. high, 12 in. diam., corolla white.

A. dactylina is a remarkable species. Its corolla is campanulate with the tube only half as long as the lobes. The lobes are broadly ovate, as wide as long and trilobed to middle.

The staminodia of *A. dactylina* are unique, being small, thick, erect and glabrous, often wider than long, with apex subentire, bifid or dactylose. In their small size and fleshy features they suggest the staminodia of the genus *Chiclea*. Those of the latter differ markedly in being strongly inflexed and pubescent.

Achras excelsa (Lundell) Lundell, comb. nov. *Chiclea excelsa* Lundell, Wrightia 5: 224. 1976. Plate 28.

Guatemala: Dept. Peten, La Cumbre, in *zapotal*, about 4 km. east on Rio Purula Road, on top of hill, Sept. 19, 1975, *C. L. Lundell & Elias Contreras 19887* (LL, holotype), tree, 50 ft. high, 10 in. diam., flowers white, *"chiquibul."*

Achras guatemalensis (Lundell) Lundell, comb. nov. *Chiclea guatemalensis* Lundell, Wrightia 5: 222. 1976. Plate 29.

Guatemala: Dept. Izabal, Cadenas, on Caserio Semox, km. 193 of the Peten-Guatemala Road, in high forest, *zapotal*, April 5, 1975, *C. L. Lundell & Elias Contreras 19140* (LL, holotype), tree, up to 80 ft. high, 20 in. diam., *"chiquibul," "chicle de segunda."*

Achras latiloba Lundell, sp. nov. Plate 30.

Arbor, usque 18 m. alta, 36 cm. diam.; ramuli crassi, tomentosi; folia glabrata, petiolata, petiolo usque 3.5 cm. longo; lamina coriacea, elliptica, elliptico-oblonga vel obovata, 7–15 cm. longa, 2.5–6 cm. lata, apice obtusa, basi acuta, concolora, subtus novella areolata; pedicelli usque 2.5 cm. longi; sepala tomentosa, exteriora ovata, ca. 8 mm. longa, 6 mm. lata, interiora ovato-elliptica, ca. 10 mm. longa, 6 mm. lata, obtusiuscula; corolla usque 1.3 cm. longa; tubus 6–7 mm. longus; lobis usque 6 mm. longis, 3-lobatis, lobo medio lobis lateralibus longiore, late obovato vel rotundato usque 2 mm. longo, lobis lateralibus usque 1.5 mm. longis, lanceolatis, acuminatis; staminodia petaloidea, ovato-elliptica vel lanceolata, 3–3.5 mm. longa, usque 2.5 mm. lata, bifida vel dentata ad apicem, extus dense villosa; antherae 3 mm. longae; ovarium 10-loculare.

Tree, about 18 m. tall; branchlets mostly thick, brownish tomentose at first; leaves with long slender petioles up to 3.5 cm. long; leaf blades glabrate, coriaceous, elliptic, elliptic-oblong or obovate, up to 15 cm. long, 6 cm. wide, apex rounded and obtusish, base acute, the midvein elevated beneath, sulcate above with a narrow medial ridge, smooth above, areolate beneath at first, obscurely so at maturity; pedicels solitary in the leaf axils at apex of branchlets, crowded, up to 2.5 cm. long, tomentose; sepals 6, the outer ovate, smaller, the inner up to 1 cm. long, tomentose; corolla large, up to 1.3 cm. long with tube exceeding lobes, glabrous on exterior except for area of pubescence opposite the staminodia; corolla lobes up to 6 mm. long, sometimes entire, sometimes mitten-like with an appendage on only one side, usually very shallowly 3-lobed, the lateral lobes (appendages) lanceolate, up to 1.5 mm. long, acute, acuminate or filiform at apex, the median lobe depressed rounded or obovate, up to 2 mm. long, longer than the lateral ones; staminodia erect, petaloid, variable but mostly ovate-elliptic or lanceolate, up to 4 mm. long, 2.5 mm. wide, bifid or dentate at apex, the exterior densely villous; anthers oblongish, 3 mm. long, appressed pubescent dorsally; ovary hirsute, 10-loculate; style thick, glabrous, equalling corolla.

Guatemala: Dept. Peten, Carmelita, in *zapotal,* between San Miguel and Carmelita, about 55 km. from Ciudad Flores, April 29, 1977, *C. L. Lundell & Elias Contreras 20867* (LL, holotype), tree, 60 ft. high, 15 in. diam., corolla white. *Lundell & Contreras 20864* (LL) from same area is referable here.

In *A. latiloba t*he median lobe of the corolla lobes usually is wider than long, either depressed-rounded or obovate, not oblanceolate or spatulate. Its large conspicuously pubescent anthers and large villous staminodia further distinguish the taxon.

Achras paludosa Lundell, sp. nov. Plate 31.

Arbor; ramuli crassiusculi; folia petiolata, petiolo usque 2.5 cm. longo; lamina coriacea, oblanceolato-oblonga vel anguste oblongo-elliptica, ad 12 cm. longa, 4.2 cm. lata, apice obtusiuscula, obtusa vel rotundata, basi acuta; pedicelli ad 1 cm. longi, tomentelli; sepala 6, exteriora ovata, ca. 7 mm. longa, tomentella, interiora elliptica, ca. 7.5 mm. longa; corolla glabra, urceolata, 8 mm. longa, lobis 4 mm. longis, anguste ellipticis, apice minute 3-lobulatis; staminodia ca. 3.8 mm. longa, 1.4 mm. lata, erecta, glabra, apice bifurcata; stamina 2.5 mm. longa; ovarium tomentellum, 10-loculare; pedicelli fructiferi crassi, ad 2.5 cm. longi; semina ellipsoidea, ad 2.2 cm. longa, apice rotundata, basi obtusa.

Large tree, up to 30 m. tall, the branchlets with congested leaf scars at apex, tomentose at first; leaves glabrous at maturity, with slender canaliculate petioles up to 2.5 cm. long; leaf blades coriaceous, oblanceolate-oblong or narrowly oblong-elliptic, 6–12 cm. long, 2.5–4.2 cm. wide, apex obtusish to rounded and emarginate, base acute, the venation obscure; pedicels solitary, up to 1 cm. long, brownish-tomentose like the outer sepals; sepals 6, the 3 outer ovate, at least 7 mm. long, acutish, the inner elliptic, thinner and paler, 7.5 mm. long, obtusish, pubescent on both surfaces; corolla glabrous, urceolate, 8 mm. long, the tube equalling the lobes, the lobes 4 mm. long, narrowly elliptic, about 2.4 mm. wide,

rounded at apex and obscurely 3-lobulate; staminodia petaloid, erect, glabrous, subequalling lobes, narrowly elliptic, about 3.8 mm. long, 1.4 mm. wide, distinctly bifurcate at apex; stamens 6; filaments distinct but fused below to tube to base, free about 0.5 mm. below apex of tube, the free section of filament slender-subulate, about 1.2 mm. long; anthers lanceolate, rounded and widest at base, 2 mm. long, tapering to apex, apiculate; ovary and style 8.5 mm. long; ovary and basal third of style pubescent; ovary 10-loculate; stigma obscurely lobulate; fruits ovoid or subglobose, brownish; seed glossy, brown on dorsal side, whitish about a third of length on ventral side, ellipsoid, up to 2.2 cm. long, compressed with the edges sharp; seed-scar lateral, linear, up to 8.5 mm. long, straight or rounded, apex rounded, base obtuse-rounded, with distinct fissure up to 2.5 mm. from ventral edge, extending up to 5 mm., parallel to edge, almost to base of seed-scar.

Guatemala: Dept. Peten, Uaxactun, in low forest, Bajo El Corchal, about 7.7 km. from ruins, Jan. 24, 1976, *C. L. Lundell & Elias Contreras 19962* (LL, holotype, 2 sheets, fl. & fr.), tree, 60 ft. high, 15 in. diam., flowers whitish, fruits brownish, *"chico zapote";* Uaxactun, El Corchal, 7.8 km. from ruins, in high forest, *zapotal-ramonal,* Jan. 24, 1976, *Lundell & Contreras 19963* (LL, fr.), tree, 90 ft. high, 25 in. diam., fruit brownish, *"chico zapote."*

Closely related to *Achras Zapota* L., *A. paludosa* differs significantly in seed characteristics. Its short lateral seed scar without beak at apex, combined with the distinct fissure which extends from base of seed, parallel to ventral edge, to base of seed scar, are notable features. In the second collection, *19963*, the fissure extends to top of seed scar, parallel to ventral edge. This fissure at base has a superficial resemblance to a dolphin's closed mouth.

The flowers of *A. paludosa* closely resemble those of *A. Zapota,* differing primarily in the attachment of the filaments below the apex of the corolla tube, with the filaments below distinct but adnate to base of tube. The corolla lobes, rather narrow, are obscurely 3-lobulate. The glabrous erect narrow staminodia are distinctly bifurcate at apex and petaloid.

The *chico zapote* is commonly found in swamp forest *(bajo),* where it is a stunted tree. *A. paludosa* is the first species, other than *Achras Zapota,* recognized in this habitat in Peten.

Achras staminodella (Gilly) Lundell, Phytologia 16: 446. 1968. *Manilkara staminodella* Gilly, Trop. Woods 73: 10. 1943. *Manilkariopsis staminodella* (Gilly) Lundell, Wrightia 5: 176. 1975. *Chiclea staminodella* (Gilly) Lundell, Wrightia 5: 225. 1976. Plate 32.

British Honduras: Toledo District (?), Camp 33, British Honduras–Guatemala boundary survey, 2850 ft. alt., April 29, 1934, *W. A. Schipp 1310* (NY, holotype; F, LL, MICH, isotypes), tree, 100 ft., 3 ft. diam., flowers creamy-white, fruits brown and vary in size from mere marbles to that of average sized hen eggs; common tree inland.

The species is known only from type collection!

Achras Tainteriana Lundell, sp. nov. Plate 33.

Arbor; ramuli crassi; folia petiolata, petiolo usque 3 cm. longo; lamina coriacea, elliptica, oblongo-elliptica vel obovato-elliptica, 9–12 cm. longa,

3.8–5.5 cm. lata, apice acuta vel obtusiuscula, basi acuta, subtus novella areolata; pedicelli 1.5–2 cm. longi, rufo-tomentelli; sepala 6, exteriora rufo-tomentella, ovata, ca. 9 mm. longa, 6.5 mm. lata, acuta, interiora elliptica vel obovata, ca. 1 cm. longa, apiculata; corolla usque 1.1 cm. longa; tubus usque 5.5 mm. longus; lobis usque 6 mm. longis, 3-lobatis, lobo medio anguste elliptico, usque 4 mm. longo; lobis lateralibus lanceolatis, imbricatis; staminodia late ovata vel rotundata, usque 3 mm. longa et lata, ad marginem lacerato-fimbriato-dentata, extus villosa; antherae usque ad 3 mm. longae, acuminatae; ovarium 8–10-loculare, hirsutum.

Tree, about 10 m. tall, 20 cm. diam., the branchlets stout, with fine reddish tomentum at first; leaves with slender petioles up to 3 cm. long; leaf blades glabrate, coriaceous, elliptic, oblong-elliptic or obovate-elliptic, up to 12 cm. long, 5.5 cm. wide, acute or obtusish at apex, acutish at base, the young leaves areolate beneath; pedicels up to 2 cm. long, with fine reddish tomentum; outer sepals reddish-tomentose, the inner whitish, the exterior 3 ovate, up to 9 mm. long, acute, the 3 interior elliptic or obovate, up to 1 cm. long, apiculate; corolla up to 1.1 cm. long, with tube up to 5.5 mm. long, glabrous on outer surface except for area of pubescence opposite the staminodia; corolla lobes veiny, about 6 mm. long, 3-lobate up to two-thirds of length, the interior medial lobe narrowly elliptic, up to 4 mm. long, equalling or subequalling the lateral lobes (appendages); lateral lobes lanceolate, mostly acuminate; staminodia villous, erect, broadly ovate or suborbicular, up to 3 mm. long and wide, the margin lacerate-dentate or fimbriate; anthers up to 3 mm. long, acuminate; ovary 8–10-loculate, hirsute, the thick style glabrous, equalling corolla.

Guatemala: Dept. Peten, km. 20 of Ciudad Flores–Poptun Road, on Santa Ana branch road in low *zapotal,* April 23, 1977, *C. L. Lundell & Elias Contreras 20844* (LL, holotype), tree, 30 ft. tall, 8 in. diam., corolla white.

The taxon is noteworthy for its conspicuously veiny corolla lobes which are 3-lobate up to two-thirds of their length with the long median lobe narrowly elliptic and enclosed by the overlapping lateral lobes, all of equal length. The erect villous, lacerate-dentate staminodia are distinctive.

In 1933 the late O. A. Tainter, to whom I dedicate this species, was host at La Libertad for the Carnegie Institution of Washington–University of Michigan Expedition to Peten. An expatriate native of Saint Joe, Missouri, the colorful Tainter had a ranch and general store at La Libertad. He was a mule breeder who produced the best Mexican riding mules in Central America.

Earlier Tainter had been manager of the Chicle Development Company station at El Paso de Caballos on Rio San Pedro de Martir. At La Libertad he prematurely pioneered the exploitation of the *chiquibul* forest for the inferior gum produced by species of the genus *Chiclea* Lundell. The American chewing gum industry would not accept the gum as a substitute for chicle from *Achras Zapota* L., and he lost a fortune. Subsequently the *chiquibul* forest became a prime source of commercial gum, and exploitation in the area of production in southern Peten has

been as devastating as that in the *Achras Zapota* forest of northern Peten, Campeche, Quintana Roo and northern Belize.

Bumelia eucoriacea (Lundell) Lundell, comb. nov. *Mastichodendron eucoriaceum* Lundell, Wrightia 5: 178. 1975.

Bumelia eucuneifolia (Lundell) Lundell, comb. nov. *Mastichodendron eucuneifolium* Lundell, Wrightia 5: 358. 1977. Plate 34.

Guatemala: Dept. Peten, San Luis, in *zapotal* bordering Arroyo Quebrada Seca, km. 122 of Cadenas Road, March 28, 1977, *C. L. Lundell & Elias Contreras 20710* (LL, holotype), tree, 125 ft. high, 35 in. diam., laticiferous.

Bumelia hondurensis Lundell, sp. nov. Plate 35.

Arbor parva; folia petiolata, petiolo usque 1.5 cm. longo; lamina subcoriacea, anguste lanceolato-elliptica vel oblanceolata, 4–9.5 cm. longa, 1.3–2.8 cm. lata, apice subacuminata, basi acuta; flores fasciculati; pedicelli 1–1.5 mm. longi; sepala 5, parva, late ovato-elliptica, rufotomentosa, ca. 3 mm. longa; corolla glabra, 5-lobata; stamina 5; ovarium glabrum, 5-loculare.

Small tree, 5 m. tall; branchlets rather slender, rufous-tomentose at first; leaves rufous-pubescent at first, soon essentially glabrous except for petioles and midvein; petioles canaliculate, narrowly marginate, up to 1.5 cm. long; leaves subcoriaceous, narrowly lanceolate-elliptic or oblanceolate, not much wider above middle, up to 9.5 cm. long, 2.8 cm. wide, short acuminate, the base acute, primary lateral veins about 12 pairs, slender, widely ascending, the reticulation open, costa nearly plane above, elevated beneath; flowers usually ten or more, fasciculate in the leaf axils, with pedicels up to 1.5 mm. long in bud, the pedicels and buds rufous-tomentose; sepals 5, small, in bud broadly ovate-elliptic, up to 3 mm. long; corolla glabrous, in bud with tube shorter than lobes, the 5 lobes thin, with small lateral appendages filiform at apex; stamens 5; ovary glabrous, with 5 locules with 1 ovule in each locule, the style 1 mm. long in bud.

Honduras: Dept. El Paraiso, on rocky hillside near Quebrada Dantas, alt. 800 m., Aug. 3, 1952, *Louis O. Williams 18569* (F, holotype; LL, fragment and photo), tree, 5 m.

The relationship appears to be with *B. durifolia* (Standl.) Stearn, *B. salicifolia* (L.) Swartz and *B. parviflora* (Lundell) Lundell. It is probably nearest the latter which has much smaller flowers, long-petioled leaves mostly ovate-lanceolate, and with entirely different venation. Only flower buds are available.

Bumelia parviflora (Lundell) Lundell, comb. nov. *Mastichodendron parviflorum* Lundell, Wrightia 5: 179. 1975. Plate 36.

Guatemala: Dept. Peten, La Cumbre, in *zapotal*, 4 km. east on Purula River Road, on top of hill, Sept. 21, 1975, *C. L. Lundell & Elias Contreras 19908* (LL, holotype), tree, 50 ft. high, 8 in. diam., "*silion.*"

B. parviflora differs from *B. durifolia* (Standl.) Stearn primarily in having small flowers about half as large. Although collected repeatedly from the same vicinity as the type, no fruiting material has been obtained. *B. durifolia* is known only from the type collection.

Mopania Lundell, gen. nov. Plate 37.

Arbores; folia magna, coriacea, petiolata; flores in axillis fasciculati, pedicellati; sepala 6, corolla campanulata vel subrotata; tubus ad 2.5 mm. longus; lobis 6, ovato-lanceolatis vel ellipticis, ad 6 mm. longis, subacutis vel rotundatis, integris; staminodia 6, petaloidea, laciniata vel erosa vel bifida ad apicem; stamina 6, staminodia subaequantes; antheris ca. 3 mm. longis; ovarium 6–10-loculare.

Type species: *Mopania Chicle* (Pittier) Lundell. *Achras Chicle* Pittier.

This is *Manilkara*, subgenus *Nisperoa* Gilly, Trop. Woods 73: 14. 1943. Because of possible confusion with *Nispero* Aubreville, Adansonia 5: 15–19. 1965, a genus not applicable and of doubtful status, a new genus is proposed.

Since features of the corolla are considered of taxonomic significance generically in the Sapotaceae, the campanulate corolla with entire lobes of *Mopania* well-mark it from *Achras* L. proper, *Manilkariopsis* (Gilly) Lundell, *Chiclea* Lundell, and *Manilkara* Adanson, in which the lobes range from dentate, lobulate, to lobed to below middle, with *Manilkara* triparted to apex of tube. The simple flowers of *M. Chicle*, with the entire corolla lobes, shallow tube, and petaloid staminodia (modified filaments) suggest that these are the most primitive with progressive complexity in *Achras, Manilkariopsis, Chiclea,* and *Manilkara* based on longitudinal fission as an evolutionery trend (in so far as this character is emphasized).

The genus is named for the Mopan River which drains south-central Belize where *M. Chicle* is one of the noble trees of this great rain forest.

Mopania Chicle (Pittier) Lundell, comb. nov. *Achras Chicle* Pittier, Journ. Wash. Acad. Sci. 9: 436. 1919; Lundell, Wrightia 5: 167. 1975. Plate 37.

Mopania calcicola (Pittier) Lundell, comb. nov. *Achras calcicola* Pittier, Journ. Wash. Acad. Sci. 9. 438. 1919.

Peteniodendron rufotomentosum Lundell, sp. nov. Plate 38.

Arbor; ramuli crassi, dense rufotomentosi; folia petiolata, petiolo rufotomentoso, 1–3 cm. longo; lamina chartacea vel subcoriacea, elliptica, obovato-elliptica vel oblanceolata, 12–30 cm. longa, 5–12.5 cm. lata, apice subabrupte acuminata, basi acuta, supra glabrata, subtus rufotomentosa, nervis 13–15-jugis, crassis; flores unisexuales vel pseudohermaphroditi, ad axillas vel nodos defoliatos fasciculati, pedicellati, pedicellis 2–5 mm. longis, rufotomentosis; sepala, petala, stamina et staminodia 5. *Flores staminati* pseudohermaphroditi; sepala imbricata, elliptica, 4.5–6 mm. longa, extus rufotomentosa, intus adpresse pubescentia; gamopetala; corolla 6–7 mm. longa, glabra, lobis late ovatis, 4–5 mm. longis; staminodia lanceolata, 2–2.3 mm. longa, acuminata, glabra; stamina ca. 3 mm. longa; filamenta basi lata, ca. 1.5 mm. longa; antherae ovato-ellipticae, ca. 2 mm. longae, apiculatae; ovarium hirsutum, 2-loculare; stylus crassus, ca. 2 mm. longus. *Flores pistillati* unisexuales, parvi; sepala ad 2.2 mm. longa, imbricata; corolla gamopetala, 3.5–4 mm. longa; stamina nulla; staminodia parva vel abortiva; ovarium hirsutum, 2-loculare; stylus crassus, ca. 1 mm. longus. *Fructus* ignotus.

Tree, up to 15 m. tall, 36 cm. diam., the branchlets thick, rufous-tomentose; leaves large, petiolate with petioles stout and up to 3 cm. long, subterete; leaf blades mostly chartaceous, rufous-tomentose beneath, glabrate above except along midvein, broadly elliptic, obovate-elliptic or oblanceolate, up to 30 cm. long, 12.5 cm. wide, apex rather abruptly short acuminate, base acute, the midvein stout and elevated beneath, nearly plane above, the primary lateral veins 13-15-pairs, ascending at a wide angle, elevated beneath, nearly plane above; flowers unisexual or pseudohermaphrodite, fasciculate in the leaf axils or at defoliated nodes, rufous-tomentose; pedicels rather short, 2–5 mm. long; sepals, petals, stamens and staminodia 5. *Staminate flowers* pseudohermaphrodite; sepals imbricate, elliptic, up to 6 mm. long; corolla up to 7 mm. long, with short tube, white, glabrous, the lobes entire, broadly ovate, up to 5 mm. long, the tube about 2 mm. long, with the stamens and staminodia attached at apex of tube; staminodia 5, thin, lanceolate, up to 2.3 mm. long, acuminate or subulate at apex, glabrous; stamens about 3 mm. long; ovary hirsute with erect hairs, shallowly lobed, usually 2-loculate, with 1 basilateral ovule in each locule; style glabrous, stout, about 2 mm. long, the stigma rounded or truncate. *Pistillate flowers* unisexual, small, about half the size of staminate; sepals up to 2.2 mm. long, rufous-tomentose; corolla 3.5–4 mm. long, glabrous, the tube very short; stamens none, without vestige; staminodia small, abortive or none; ovary hirsute, 2-loculate, with basilateral ovule in each locule; style glabrous, thick, about 1 mm. long, with stigmatic surface truncate at apex. *Fruits* unknown.

Guatemala: Dept. Baja Verapaz, Niño Perdido, bordering Rio San Jose, 8 km. north, in high forest, May 28, 1977, *C. L. Lundell & Elias Contreras 21006* (LL, holotype, staminate flowers), tree, 40 ft. high, 10 in. diam., corolla white, "*zapotillo de montaña*"; same locality, May 28, 1977, *Lundell & Contreras 21009* (LL, staminate flowers); Niño Perdido on San Jose Espinero Road about 6.4 km., in high forest, May 24, 1977, *Lundell & Contreras 20969* (LL, staminate flowers), tree, 50 ft. high, 15 in. diam.; Niño Perdido, on San Jose Road, bordering Arroyo El Caracol, in high forest 6 km. east, June 18, 1977, *Lundell & Contreras 21130* (LL, pistillate flowers), tree, 45 ft. high, 12 in. diam., corolla white, "*zapotillo de montaña.*"

This is a remarkable discovery, a very distinct dioecious species with all the fioral features of the genus *Peteniodendron*. As in *Peteniodendron belizense* Lundell, the type of the genus, the pistillate fiowers are greatly reduced with the stamens absent, and the staminodia abortive or absent.

Pouteria Mante Lundell, Wrightia 5: 181. 1975. Plate 39.

Mexico: Veracruz, Tuxpam, May 19, 1945, *Efraim Hernandez X. 693* (LL, holotype), cultivated tree, fruits with orange-yellow skin, flesh yellow, firm and edible, called "*mante.*"

Pouteria squamosa Cronquist, Lloydia 9: 283. 1946. Plate 40.

Guatemala: Dept. Izabal, Rio Dulce, 2–4 miles west of Livingston, on south side, alt. 1–3 m., April 16, 1940, *Julian A. Steyermark 39557* (F, holotype), tree, leaves subcoriaceous, rich green above, pale green beneath.

Holotype of *Oreomunnea americana* Lundell, sp. nov., *C. L. Lundell & Elias Contreras 19701* (LL).

Holotype of *Coccoloba itzana* Lundell, sp. nov., *C. L. Lundell & Elias Contreras 20755* (LL).

Holotype of *Coccoloba verapazensis* Lundell, sp. nov., *C. L. Lundell & Elias Contreras 20941* (LL).

Holotype of *Aniba guatemalensis* Lundell, *Elias Contreras 7941* (LL), Wrightia 4: 98. 1969.

LUNDELL
HERBARIUM
PLANTS OF GUATEMALA
Licaria areolata Lundell, sp. nov.
TYPE!
"Laurel" Tree, 40 ft. high, 6 in. diam.;
flowers yellowish.
Dept. Izabal: Cadenas, in high forest
bordering Rio Dulce Road, 4.5 km.
Elias Contreras No. 10108 July 4, 1970

Holotype of *Licaria areolata* Lundell, *Elias Contreras 10108* (LL), Wrightia 4: 156. 1971. *Misanteca areolata* (Lundell) Lundell.

Holotype of *Chanekia caudata* Lundell, *C. L. Lundell 6183* (LL), Phytologia 1: 178. 1937. *Licaria caudata* (Lundell) Kosterm. *Misanteca caudata* (Lundell) Lundell

LUNDELL HERBARIUM
FLORA OF GUATEMALA
Lundell Herbarium
Licaria clavata Lundell, sp. nov.
, 20 ft. high, 3 in. diam., flowers
sh.
DEPARTMENT OF BAJA VERAPAZ: Chilasco, in high forest, on Concepcion Road.
No. 10923
July 20,

Holotype of *Licaria clavata* Lundell, *Elias Contreras 10923* (LL), Wrightia 5: 32. 1974. *Misanteca clavata* (Lundell) Lundell.

LUNDELL
HERBARIUM
FLORA OF GUATEMALA
Lundell Herbarium
Licaria clavata Lundell, sp. nov.
TYPE
Tree, 20 ft. high, 3 in. diam., flowers greenish.
DEPARTMENT OF BAJA VERAPAZ: Chilasco, in high forest, on Concepcion Road.
Elias Contreras No. 10923 July 29, 1

Isotype of *Licaria clavata* Lundell, *Elias Contreras 10923* (LL, fruit), Wrightia 5: 32. 1974. *Misanteca clavata* (Lundell) Lundell.

ANNOTATION LABEL
Licaria conoidea Lundell, sp. nov. TYPE
Determined by C. V. Lundell
PLANTS OF GUATEMALA
Licaria guatemalensis Lundell
det. Lundell 1972
Tree, 25 ft. high, 3 in. diam.
Dept. Izabal: Puerto Mendez, 19 km. on Rio Dulce Road, in high forest.
Elias Contreras No. 10277 Sept. 14, 1970

Holotype of *Licaria conoidea* Lundell, *Elias Contreras 10277* (LL), Wrightia 5: 33. 1974. ***Misanteca conoidea*** **(Lundell) Lundell.**

Isotype of *Acrodiclidium glaberrimum* Lundell, *Eizi Matuda 2981* (LL), Lloydia 4: 46. 1941. *Licaria glaberrima* (Lundell) C. K. Allen. *Misanteca glaberrima* (Lundell) Lundell.

FLORA OF GUATEMALA
Lundell Herbarium
Misanteca Ibarrae Lundell, sp. nov.
"Laurel" Tree, 60 ft. high, 10 in. diam., flowers yellow-green, fruit green.
DEPARTMENT OF BAJA VERAPAZ: Union Barrios, in high forest on top of hill, west of km. 153/154 of Coban Road.
C. L. Lundell
Elias Contreras

Holotype of *Misanteca Ibarrae* Lundell, *C. L. Lundell & Elias Contreras 19780* (LL), Wrightia 5: 332. 1977. *Licaria Ibarrae* (Lundell) Lundell.

LUNDELL HERBARIUM
PLANTS OF MEXICO
Acrodiclidium lucidum Lundell, sp. nov.
Type collection!!
Tree, 10 meters high
Santa Rosa, near Escuintla, alt. 1600 meters, in advanced forest

Isotype of *Acrodiclidium lucidum* Lundell, *Eizi Matuda 4239* (LL), Contr. Univ. Michigan Herb. 7: 12. 1942. *Licaria lucida* (Lundell) C. K. Allen. *Misanteca lucida* (Lundell) Lundell.

Holotype of *Misanteca nayaritensis* Lundell, *Efraim Hernandez X. 136* (LL), Wrightia 5: 332. 1977. *Licaria nayaritensis* (Lundell) Lundell.

NY
No. 8562
LUNDELL HERBARIUM
ANNOTATION LABEL
Licaria oblongifolia Lundell, sp. nov.
TYPE!
PLANTS OF GUATEMALA
Licaria capitata (C. & S.) Kosterm.
"Laurel" Small tree, 2 m. diam., 15 ft. high, fruit green.
DEPARTMENT OF PETEN: Dolores, between kms. 85/86, west of Machaquila Road, in bajo, September 20, 1961.
2937

Holotype of *Licaria oblongifolia* Lundell, *Elias Contreras 2937* (LL), Wrightia 4: 32. 1968. *Misanteca oblongifolia* (Lundell) Lundell.

ANNOTATION LABEL
Licaria reclinata Lundell, sp. nov.
Determined by C. L. Lundell TYPE!
PLANTS OF GUATEMALA
Licaria triandra (Sw.) Kosterm.
det. Lundell 1965
"Laurel" Tree, 35 ft. high.
DEPARTMENT OF PETEN: Laguna Petexbetun, in high forest on the peninsula.
C. L. Lundell No. 18178 April 2, 1964

Holotype of *Licaria reclinata* Lundell, *C. L. Lundell 18178* (LL), Wrightia 4: 32. 1968. *Misanteca reclinata* (Lundell) Lundell.

ANNOTATION LABEL
Misanteca tikalana Lundell, sp. nov.
TYPE!
PLANTS OF GUATEMALA
Licaria capitata (Schlecht. & Cham.) Kosterm.
det. Lundell 1965
"Laurel" Tree, 15 in. diam., 50 ft. high,
fruit green.
DEPARTMENT OF PETEN· Tikal National Park,
in epiphal on Oreactum trail.

Holotype of *Misanteca tikalana* Lundell, *Elias Contreras 1974* (LL), Wrightia 4: 101. 1969. *Licaria tikalana* (Lundell) Lundell.

LUNDELL
HERBARIUM
FLORA OF GUATEMALA
Licaria urceolata Lundell, sp. nov.
TYPE!
"Laurel" Small tree, 45 ft. high, 6 in. diam., fruit green.
Cadenas, in low forest on a rocky hill east of km. 169/170 of the Poptun Road.
6005
Aug. 19, 1966

Holotype of *Licaria urceolata* Lundell, *Elias Contreras 6005* (LL), Wrightia 4: 33. 1968. *Misanteca urceolata* (Lundell) Lundell.

Holotype of *Ocotea bajapazensis* Lundell, sp. nov., *C. L. Lundell & Elias Contreras 20946* (LL).

Holotype of *Ocotea effusoides* Lundell, sp. nov., *C. L. Lundell & Elias Contreras 20948* (LL).

Holotype of *Alchornea guatemalensis* Lundell, sp. nov., *C. L. Lundell & Elias Contreras 21201* (LL)

ANNOTATION LABEL
DETERMINED BY C. L. LUNDELL
PLANTS OF GUATEMALA
C. L. Lundell
Elias Contreras No. 19082 Date March 1942
Locality: Dept. of El Peten, La Libertad
in zapotal, high forest, west of
Lake 141/42 - of the Peten/
Description of plant: Tree, 15 ft. high, 15"
diam. - flowers greenish -
greenish

Holotype of *Casearia itzana* Lundell, sp. nov., *C. L. Lundell & Elias Contreras 19082* (LL).

LUNDELL
FLORA OF GUATEMALA
El Peten
Eugenia Eliasii Lundell, n. sp.
TYPE!
"Guayabillo" Small tree, 35 ft. high, 4 in. diam., fruits dark-red.
Cadenas, on la Pedrera, on top of rocky hill.
Elias Contreras No. 6838 March 24, 1967

Holotype of *Eugenia Eliasii* Lundell, *Elias Contreras 6838* (LL), Phytologia 16: 443. 1968.

FLORA OF GUATEMALA
Lundell Herbarium
Eugenia Eliasii Lundell
"Guayabillo" Tree, 45 ft. high, 10 in. diam., flowers white.
DEPARTMENT OF PETEN: La Cumbre, in zapotal on top of hill, Sapurul, SW.
Elias Contreras No. 20771 April 10, 1977

Flowering specimen of *Eugenia Eliasii* Lundell, *C. L. Lundell & Elias Contreras 20771* (LL).

Holotype of *Manilkara breviloba* Gilly, *Percy H. Gentle 1238* (NY), Trop. Woods 73: 19. 1943. *Achras breviloba* (Gilly) Lundell.

Holotype of *Achras coriacea* Lundell, sp. nov., *C. L. Lundell & Elias Contreras 20842* (LL).

FLORA OF GUATEMALA
Lundell Herbarium
Chiclea Cortesiana Lundell, sp. nov.
TYPE!
"Chiquibul" Tree, 80 ft. high, 18 in. diam., flowers white.
DEPARTMENT OF PETEN: La Cumbre, on top of hill, in zapotal, about 1.5 km. on Pusila Road.
C. L. Lundell
Elias Contreras
No. 20099
July 27, 1976

Holotype of *Chiclea Cortesiana* Lundell, *C. L. Lundell & Elias Contreras 20099* (LL), Wrightia 5: 318. 1976. *Achras Cortesiana* (Lundell) Lundell.

FLORA OF GUATEMALA
Lundell Herbarium
Achras dactylina Lundell, sp. nov.
HOLOTYPE!
Tree, 40 ft. high, 12 in. diam., corolla white.
DEPARTMENT OF PETEN: Yal-Tutu,
Ciudad Flores-Poptun Road, in

Holotype of *Achras dactylina* Lundell, sp. nov., *C. L. Lundell & Elias Contreras 20846* (LL).

FLORA OF GUATEMALA
Lundell Herbarium
Chiclea excelsa Lundell, sp. nov.
TYPE!
"Chiquibul" Tree, 50 ft. high, 10 in. diam., flowers white.
DEPARTMENT OF PETEN: La Cumbre, in zapotal, about 4 km. east on Rio Purula Road, on top of hill.
C. L. Lundell
Elias Contreras
No. 19887
Sept. 19, 1975

Holotype of *Chiclea excelsa* Lundell, *C. L. Lundell & Elias Contreras 19887* (LL), Wrightia 5: 224. 1976. *Achras excelsa* (Lundell) Lundell.

LUNDELL
HERBARIUM
FLORA OF GUATEMALA
Lundell Herbarium
Chiclea guatemalensis Lundell, gen. & sp. nov.
TYPE!
"Chiquibul," "Chicle de Segunda" Tree, 80 ft. high, 20 in. diam., flowers white.
DEPARTMENT OF IZABAL: Cadenas (Puerto Mendez), on Caserio Semox, km. 193 of the Peten-Guatemala Road, in high forest, zapotal.
C. L. Lundell
Elias Contreras
No. 19140
April 5, 1975

Holotype of *Chiclea guatemalensis* Lundell, *C. L. Lundell & Elias Contreras 19140* (LL), Wrightia 5: 222. 1976. *Achras guatemalensis* (Lundell) Lundell.

FLORA OF GUATEMALA
Achras latiloba Lundell, sp. nov.
HOLOTYPE!
"Chico zapote" Tree, 60 ft. high, 15 in. diam., corolla white.
DEPARTMENT OF PETEN: Carmelita, in zapotal, between San Miguel and Carmelita, about 55 km. from Ciudad Flores.
C. L. Lundell
Elias Contreras
No. 20867
April 29, 1977

Holotype of *Achras latiloba* Lundell, sp. nov., *C. L. Lundell & Elias Contreras 20867* (LL).

Holotype of *Achras paludosa* Lundell, sp. nov., *C. L. Lundell & Elias Contreras 19962* (LL).

Holotype of *Manilkara staminodella* Gilly, *W. A. Schipp 1310* (NY), Trop. Woods 73: 10. 1943. *Achras staminodella* (Gilly) Lundell. *Manilkariopsis staminodella* (Gilly) Lundell. *Chiclea staminodella* (Gilly) Lundell.

FLORA OF GUATEMALA
Lundell Herbarium
Achras Tainteriana Lundell, sp. nov.
DEPARTMENT OF Petén; km. 20 of Chunal-Sayaxché-
Poptun Road, on Santa Ana branch road
low zap tal.
C. L. Lundell
Elias Contreras No. 20844 April 23, 1977

Holotype of *Achras Tainteriana* Lundell, sp. nov., *C. L. Lundell & Elias Contreras 20844* (LL).

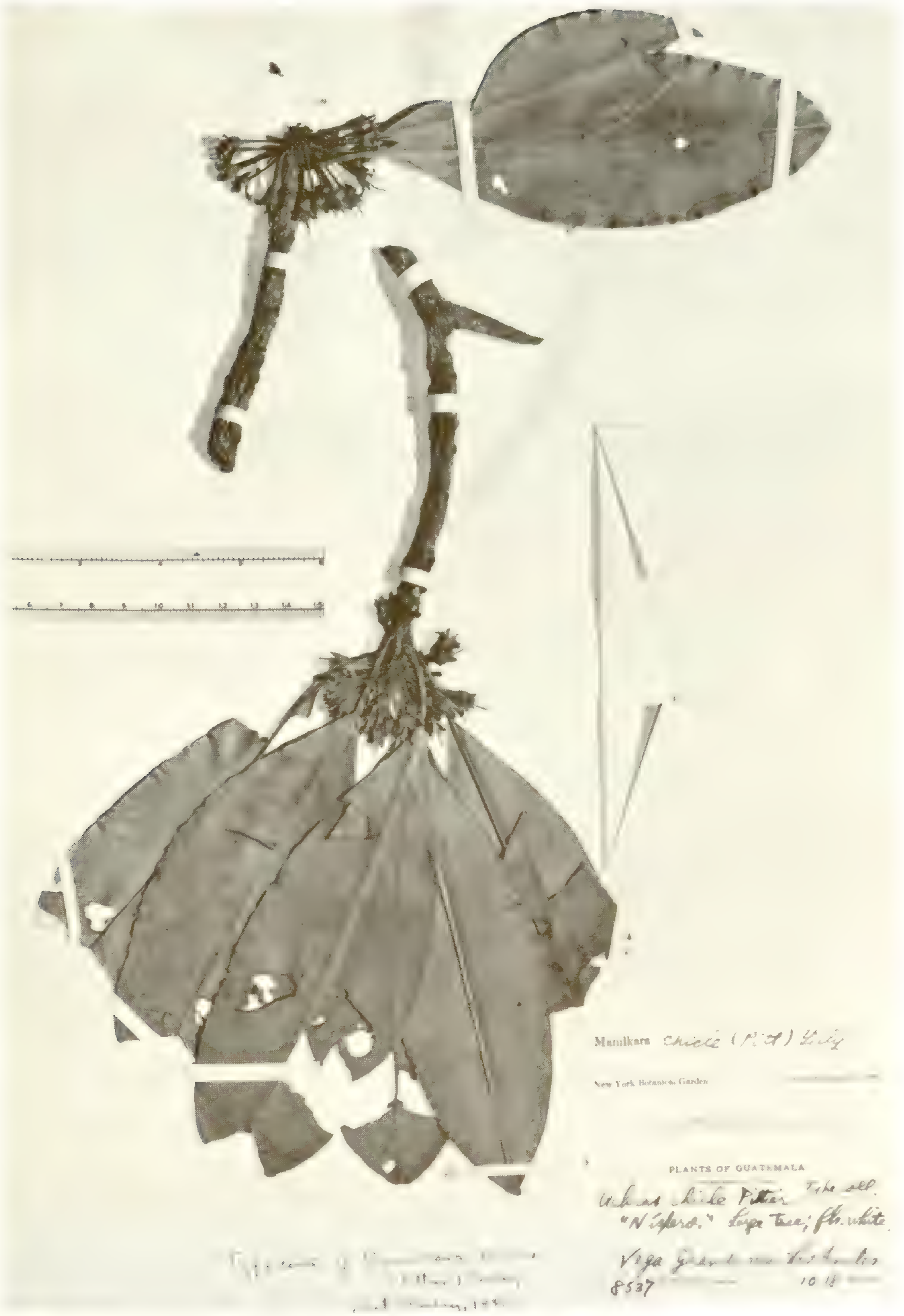
FLORA OF GUATEMALA
Lundell Herbarium
Mastichodendron eucuneifolium Lundell, sp. nov.
TYPE!
Tree, 125 ft. high, 35 in. diam., laticiferous, the fruits dry, ovoid.
DEPARTMENT OF PETEN: San Luis, in zapotal bordering Arroyo Quebrada Seca, km. 122 of Cadenas Road.
C. L. Lundell
Elias Contreras
No. 20710
March 28, 1977

Holotype of *Mastichodendron eucuneifolium* Lundell, *C. L. Lundell & Elias Contreras 20710* (LL), Wrightia 5: 358. 1977. *Bumelia eucuneifolia* (Lundell) Lundell.

Holotype of *Bumelia hondurensis* Lundell, sp. nov., *Louis C. Williams 18569* (F).

LUNDELL
HERBARIUM
FLORA OF GUATEMALA
Lundell Herbarium
Mastichodendron parviflorum Lundell, sp. nov.
TYPE!
" Tree, 50 ft. high, 8 in. diam.
DEPARTMENT OF PETEN: La Cumbre, in savannah,
+ km. east on Purula River Road, on top
of hill.
C. L. Lundell
Elias Contreras No. 19908 Sept. 21, 1

Holotype of *Mastichodendron parviflorum* Lundell, *C. L. Lundell & Elias Contreras 19908* (LL), Wrightia 5: 179. 1975. *Bumelia parviflora* (Lundell) Lundell.


Manilkara Chicle (Pittier) Lundell
New York Botanical Garden
PLANTS OF GUATEMALA
Achras Chicle Pittier. Type sheet.
"Níspero." Large Tree; fls. white.
Vega grande near Los Amates
8537 10 ft

Isotype of *Achras Chicle* Pittier, *H. Pittier 8537* (US), Journ. Wash. Acad. Sci. 9: 436. 1919. ***Mopania Chicle*** (Pittier) Lundell.

Holotype of *Peteniodendron rufotomentosum* Lundell, sp. nov., *C. L. Lundell & Elias Contreras 21006* (LL).

HERBARIUM OF EFRAIM HERNANDEZ X.
MEXICO
No 693 May 19, 1945
Pouteria Campechiana
(H.B.K.) Baehni
Det. C.L.L. 1975
cultivated, tree 5 m., 30 cm. diam.; greenish staminodia falls off soon after anthesis; fruit globose 8 x 7 cm., slightly ribbed, 2-3 seeded, orange-yellow skin, flesh
DET BY
HERBARIUM OF EFRAIM HERNANDEZ X.
MEXICO
No 693 (continued)
yellow, firm; edible "mante"
Tuxpam, Veracruz
DET BY

Holotype of *Pouteria Mante* Lundell, *Efraim Hernandez X. 693* (LL), Wrightia 5: 181. 1975.

Holotype of *Pouteria squamosa* Cronquist, *Julian A. Steyermark 39557* (F), Lloydia 9: 283. 1946.

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VICARIADS IN HENRIETTELLA (MELASTOMATACEAE)

J. J. Wurdack[1]

Several species-pairs are obvious in the genus *Henriettella*, including *H. fascicularis* (Sw.) Triana–*H. sylvestris* Gleason and *H. verrucosa* Triana–*H. tuberculosa* Donn. Smith. The two species described below are another apparent example.

Henriettella Lundellii Wurdack, sp. nov.—In aspectu vegetativo *H. fasciculari* (Sw.) Triana similis, floribus maioribus calycibus in alabastris conicis clausis demun in lobos irregulariter fissis petalis latioribus antherarum poris ventraliter inclinatis ovario omnino infero differt.

Ramuli primum tetragoni demum teretes sicut laminarum subtus venae primariae petiolique modice vel dense pilis appressis 1–2 mm. longis (setis gracilibus laevibus ad basim ipsam expansis et paulo aspero-stellulatis) demum deciduis armati. Petioli 1.5–2.5 cm. longi; lamina 10–17 × 4–7 cm. elliptica vel oblongo-elliptica apice breviter (ca. 0.5–0.7 cm.) subabrupteque acuminato basi late acuta, membranacea et essentialiter integra, distanter appresso-ciliata, supra primum sparce strigosa (pilis gracilibus ca. 2 mm. longis ad basim expansis) mox glabrata, subtus in venis secundariis sparce caduceque appresso-setulosa in venulis superficieque glabra (glandulis minutissimis sparsis deciduis exceptis) cystolithis linearibus non visis, breviter (0.5–1 cm.) 5-plinervata nervis secundariis ca. 5 mm. inter se distantibus nervulis subtus planis paulo obscuris areolis ca. 1 mm. latis. Flores 5-meri in ramulorum nodis infra folias multifasciculati, bracteolis ca. 0.2 mm. longis deciduis, pedicellis 3–4 mm. longis. Hypanthium (ad torum) 3 mm. longum sparse strigulosum pilis 0.1–0.3 mm. longis ad basim aspero-expansis; calyx in alabastris clausus ca. 2–2.5 mm. altus tenuis demum in lobos 2–3 ovatos usque ad 0.6–0.7 mm. supra torum irregulariter dehiscens: torus intus glaber. Petala glabra 4.5–9 × 4.8–5.2 mm. late ovata unguiculata apice obtuso. Filamenta 3.6–3.8 mm. longa glabra; antherarum thecae 2.3–2.5 × 0.8 × 0.9 mm. lanceatae, poro uno 0.15 mm. diam. ventraliter inclinato, connectivo ad basim paulo incrassato non appendiculato. Stigma punctiforme; stylus glaber 7–7.5 × 0.6–0.15 mm.; ovarium 5-loculare et omnino inferum, apice glabro cono non evoluto.

Guatemala: Dept. Baja Verapaz, Niño Perdido, bordering Río San José, 8 km. north, in high forest, May 27, 1977, *C. L. Lundell & Elias Contreras 20998* (US, holotype; LL, isotype), shrub 12 ft. high, 4 in. diam., flowers white.

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In foliage, *H. fascicularis* and *H. sylvestris* are similar to *H. Lundellii;* however, both of these have an essentially truncate or barely oblate-lobed calyx limb (the minute external teeth evident), acuminate petals only 1.7–2 mm. wide, a broad dorsally inclined anther pore, and the ovary apex with a cone 0.4–1 mm. high. No really close relative of *H. Lundellii* except the next-described species is apparent. *Henriettella flavescens* (Aubl.) Triana differs at least in the much sparser vegetative pubescence, essentially truncate calyx limb, and externally densely puberulent petals (anthers not seen in available material).

Henriettella hondurensis Wurdack, sp. nov.–*H. Lundellii* Wurdack affinis, pubescentia breviore foliorum laminis ad apicem hebeti-obtusis subtus venulis non vel vix evolutis antheris maioribus differt.

Ramuli primum tetragoni demum teretes sicut folia novella pilis 0.1–0.3 mm. longis arcte appressis ad basim paulo aspero-expansis mox deciduis induti. Petioli 2–3 cm. longi; lamina (6–)9–13 × (2)3–5 cm. obovato-oblonga apice hebeti-obtuso basi acuta, firme membranacea et essentialiter integra, primum appresso-ciliolata setulis ca. 0.3 mm. longis mox deciduis, in nervis primariis basim versus subtus sparse setulosa (pilis 1–1.5 mm. longis) alioqui glabrata, breviter (0.6 -1.2 cm.) 5-plinervata (pari exteriore tenui inframarginali incluso) nervis secundariis ca. 3–5 mm. inter se distantibus supra obscuris nervulis non evidentibus. Flores 5-meri in ramulorum nodos infra folias fasciculati, bracteolis ca. 0.2–0.3 mm. longis, pedicellis 7 -12 mm. longis sicut hypanthiis sparse strigulosis pilis 0.1–0.2 mm. longis ad basim paulo aspero-expansis. Hypanthium ca. 3 mm. longum; calyx ca. 1.5 mm. longus in alabastris clausus demum in lobos 3–4 usque ad 0.6 mm. supra torum dehiscens; torus intus glaber. Petala glabra late ovata. Filamenta glabra; antherarum thecae ca. 3×1× 0.8 mm. oblongo-lanceatae, poro minuto ut videtur terminali. Stigma punctiforme; stylus glaber; ovarium 5-loculare omnino inferum apice glabro.

Honduras: Dept. Cortes, Montana de Cusuco, Cordillera de Idalfonso, rain forest, 1500–2000 m. alt., May 26, 1956, *Antonio Molina 7273* (US, holotype), tree 5 m., flowers white.

Henriettella Lundellii has subabruptly acuminate leaf blades with much longer (but caducous) hairs above and evident veinlet reticulation beneath, as well as somewhat larger anthers. The floral dimensions given for *H. hondurensis* are from mature buds.

NEW RECORDS AND NEW SPECIES OF CENTRAL AMERICAN EUPATORIEAE (ASTERACEAE)

Robert M. King and Harold Robinson[1]

A number of new records and two new species of Eupatorieae have been discovered in a series of specimens sent by Dr. C. L. Lundell, Director, Plant Sciences Laboratory and Professor Emeritus at The University of Texas at Dallas. A few specimens from other sources are also noted.

Ageratum Lundellii R. M. King & H. Robinson, sp. nov. Plate 41. Plantae herbaceae erectae ca. 0.5 m. altae mediocriter ramosae. Caules fulvescentes subteretes sparse minute puberuli. Folia opposita, petiolis tenuibus 3–17 mm. longis; laminae membranaceae ovatae plerumque 4–9 cm. longae et 1.5–5.0 cm. latae base breviter acuminatae margine crenato-serratae vel serratae apice acutae supra virides persparse pilosae in nervis minute puberulae subtus pallidiores in nervis sparse pilosae fere ad basem trinervatae. Inflorescentiae laxe cymosae, pedicellis 4–12 mm. longis minute bracteis numerosis linearibus ca. 2 mm. longis. Capitula late campanulata ca. 4 mm. alta et 4–5 mm. lata; squamae involucri ca. 20 subaequilongae 2.5–3.0 mm. longae et ca. 0.7 mm. latae oblongo-ovatae margine late scariosae apice abrupte acuminatae argutae extus glabrae; receptacula alte conical epaleacea. Flores ca. 70; corollae azureae 1.5–1.7 mm. longae leniter infundibulares inferne distincte puberulae non gladuliferae, tubis brevibus ca. 0.4 mm. longis, faucis ca. 1 mm. longis, lobis triangularibus ca. 0.4 mm. longis et latis intus in cellulis firmis amplificatis antrorse projectus intus et extus fere ad marginem et apicem breviter papillosis; filamenta in parte superiore ca. 0.15 mm. longa; thecae ca. 0.5 mm. longae; appendices antherarum breviter ovatae ca. 0.12 mm. longae et latae; appendices stylorum dense breviter papillosae. Achaenia ca. 1 mm. longa subglabra in costis rudimentaliter setifera; carpopodia asymmetrica, cellulis elongatis radiatis; pappus nullus. Grana pollinis 15–17 μ in diametro.

Guatemala: Peten: Bajo de Santa Fe, in *tintal* near Aguada Puete. February 19, 1959, *C. L. Lundell 15647* (holotype, US; isotype, UTD). Additional specimen seen: Guatemala: Peten: Tikal National Park. Bajo de Santa Fe, salida de Arroyo Corriental, in *tintal* on Aguada Terminos road, January 18, 1960, *Elias Contreras 471* (US, UTD).

Ageratum Lundellii is obviously related to *A. Gaumeri* B. L. Robinson also from the area of Yucatan and northern Guatemala, and both species share the open form of inflorescence with long pedicellate heads. Both share the enlarged cells in the middle of the inner surface of the corolla lobes though the cells in the new species have firmer walls. The new species is evidently the entity described by B. L. Robinson as *A. Gaumeri* forma *fallax*. The form was distinguished by the more glabrous leaves and the minute pappus. The "coroniform pappus" of the form *fallax* is actually the upper callus of the achene and no pappus is present. Other

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distinctions of *A. Lundellii* that reenforce recognition at species level are the smaller heads, the short tubes of the corollas which result in the hairs being borne near the base, and the lack of evident setae on the achenes (only a few rudimentary cells are evident under the compound microscope). Because of the lack of a pappus, material of the new species has been called *A. platylepis* (B. L. Robinson) R. M. King & H. Robinson, but that species differs by the narrower leaves with numerous often reddish glands, the dense inflorescence, the larger heads, and the presence of prominent paleae on the receptacle.

Ageratum Nelsonii (B. L. Robinson) M. F. Johnson has not been reported from Guatemala. The species has a paleaceous receptacle but differs from *A. isocarphoides* (DC.) L. Wms. by the more ovate leaves, the more hirsute involucre and by the presence of a distinct though short coroniform pappus. The following collections have been seen.

Guatemala: Huehuetenango: clearings and mixed forest in mountains near El Reposo, about 8 km. from Mexican frontier, alt. 900–1,000 m., December 14–18, 1972, *Louis O. Williams, Antonio R. Molina & Terua P. Williams 41257* (US).

Mexico: Chiapas: wooded slope along Mexican Highway 190, 11 miles S of La Trinitaria, Municipio of La Trinitaria, elevation 3,500 ft., 14 Oct. 1965. *D. E. Breedlove & Peter H. Raven 13269* (US); slope with *Quercus* along Mexican Highway 190, 15 miles SE of Tapanatepec, elevation 3,200 ft., 20 Oct. 1965, *D. E. Breedlove & Peter H. Raven 13722* (CAS, US).

Brickellia argyrolepis B. L. Robinson is now known from Panama on the basis of two collections both from the Chiriqui region km. 3 on La Union road NW of Volcan, 4,500 ft, May 23, 1971, *George R. Proctor 32037* (UTD) and Llanos del Volcan Baru W of the volcano and about 8 km. NE of El Hato del Volcan at an elevation of about 6,000 ft., 13 February 1978, *R. L. Wilbur 24325* (DUKE, US).

The species is easily distinguished from the only member of the genus previously known from Panama, *B. diffusa* (Vahl) Gray, by being shrubby rather than an annual herb, by the larger heads with 20–25 rather than 8–14 flowers, and by the expanded rather than filiform style branches.

Chromolaena Lundellii R. M. King & H. Robinson, sp. nov. Plate 42.

Plantae herbaceae erectae ca. 0.7 m. altae medicriter ramosae. Caules virides subteretes striati minute sparse puberuli. Folia opposita, petiolis 3–10 mm. longis; laminae herbaceae ovatae vel anguste ovatae plerumque 2.0–4.5 cm. longae et 0.9–2.3 cm. latae base anguste acuminatae valde trinervatae margin pauce crenato-serratae apice subacutae anguste rotundatae supra et subtus sparse pilosae in nervis puberulae. Inflorescentiae subscaposae cymosae pauce capitatae, pedicellis 4–10 mm. longis minute puberulis. Capitula cylindrica 9–10 mm. longa et ca. 3 mm. lata; squamae involucri imbricatae ca. 25 omnino deciduae valde inaequales 1–5 mm. longae et ca. 1.3 mm. latae plerumque oblongae vel anguste oblongae margine superne minute fimbriatae apice rotundatae extus glabrae ca. 4-costatae superne vix viridiores; receptacula glabra. Flores ca. 30; corollae azureo-purpureae anguste infundibulares 3.5–4.5 mm. longae glabrae, tubis ca. 1 mm. longis, faucis 2.0–2.5 mm. longis, lobis triangulari-

bus ca. 0.4 mm. longis et latis intus dense papillosis extus in cellulis superiorbus scleroideis papillosae; filamenta in parte superiore 0.2–0.3 mm. longa, cellulis valde irregulariter annulate ornatis; thecae ca. 1.5 mm. longae; appendices antherarum oblongo-ovatae ca. 0.25 mm. longae et 0.2 mm. latae; appendices stylorum filiformes dense papillosae. Achaenia 3.5 mm. longa angusta prismatica 4–5 costata dense minute scabrida; setae pappi 30–35 plerumque ca. 4 mm. longae longiores ad apicem inerassatae. Grana pollinis ca. 20 μ in diametro.

Guatemala: Peten: Flores, bordering Lake Peten Itza, December 10, 1967, *Elias Contreras 7278* (holotype, US; isotype, UTD).

Chromolaena Lundellii is a member of the subgenus *Chromolaena* and has a sparing habit similar to *C. heteroclinia* (Griseb.) R. M. King & H. Robinson of Jamaica and *C. frustrata* (B. L. Robinson) R. M. King & H. Robinson of Florida. The former differs by the more pilose stems and leaves, the densely gladuliferous undersurfaces of the leaves, the larger heads with pointed often reddish-tipped inner involucral bracts and the broadened appendages of the style branches. Relationship of the new species seems closer to *C. frustata* but that differs by the more pubescent stems and leaves with stems hispid, the slightly incurved distal margins of the involucral bracts, the presence of a few hairs on the backs of the corolla lobes and the scarcely enlarged tips of the pappus setae.

Koanophyllon Galeottii (B. L. Robinson) R. M. King & H. Robinson, comb. nov. *Eupatorium Galeottii* B. L. Robinson, Contr. Gray Herb. n. s. 68:17. 1923.

This species is represented by many Lundell and Contreras collections from Guatemala. The species has been considered as a synonym of the Costa Rican *K. Pittieri* (Klatt) R. M. King & H. Robinson because the character difference originally used, the acute tips of the involucral bracts, proved unreliable. However, reexamination of the B. L. Robinson species shows the inner bracts are longer and narrower in shape, the achenes have a finer puberulence and more importantly the leaves have a closer finely prominulous venation and denser covering of glands on the undersurface. It now appears that all Mexico, Guatemalan and Belize material should be treated as *K. Galeottii* and *K. Pittieri* should be regarded as an endemic to Costa Rica.

Acknowledgement

This study was supported in part by the National Science Foundation Grant DEB77–13457 to the senior author.

Holotype of *Ageratum Lundellii* R. M. King & H. Robinson, sp. nov., *C. L. Lundell 15647* (US). Photos by Victor E. Krantz, Staff Photographer, National Museum of Natural History.

Holotype of *Chromolaena Lundellii* R. M. King & H. Robinson, sp. nov., *Elias Contreras 7278* (US).

STUDIES OF AMERICAN PLANTS – XVII

Cyrus Longworth Lundell[1]

In continuation of studies of the plants of the Maya area, the publication of photographs of types and other significant collections, primarily of Sapotaceae and Rubiaceae, is supplemented by notes on various species. Seven new species in the Malpighiaceae are described.

From 1944, when I founded the precursor of Texas Research Foundation at Southern Methodist University, until 1959, I was completely engrossed in administrative work as Director and Chief Scientist of the enterprise at Renner, building and keeping the institution viable as a research and service organization dedicated to the betterment of Texas agriculture. Botany was a supplementary activity, but a primary personal interest. The accumulation of a botanical library and herbarium was made possible through private support and federal grants for special projects. This funding was necessary, for public contributions, upon which operations at Renner were almost entirely dependent, were earmarked for agricultural research and extension work.

In 1959, with answers coming out of our agricultural research initiated at Renner in 1944, which made possible a rebirth of Texas agriculture, it was possible to devote more time to botany, and I resumed exploration in the Maya area with efforts concentrated in Guatemala.

From 1933 until his death in 1958, Percy H. Gentle collected for me in British Honduras. Subsequently I trained Elias Contreras as my field assistant, and his work has been continued since 1959 in Guatemala and Belize. Earlier, in the 1930's and 1940's, the field work of the late Eizi Matuda in Chiapas and Tabasco, Mexico was encouraged and financially supported.

From our exploration of the Maya area, which I began in 1928 in British Honduras, supplemented mostly by the field work of Contreras, Gentle and Matuda, extensive collections have been accumulated in the Lundell Herbarium. At least a fourth of these remain to be named, labelled and distributed.

Collections of entire families have been set aside. Specimens of one of these, the Malpighiaceae, have been accumulating since the treatment in 1936 by the late C. V. Morton of the species of the Yucatan Peninsula. In the identification of the unnamed material, seven species have been found which appear to be undescribed. Others, apparently new, remain to be studied. The tedious monograph by Niedenzu discourages work in the family.

POLYGONACEAE

Coccoloba itzana Lundell, Wrightia 6: 5, pl. 2. 1978. Plate 43.
Guatemala: Dept. Peten, La Cumbre, Caserio Sapurul, in *zapotal* bordering Arroyo Sapurul, April 7, 1977, *C. L. Lundell & Elias Contreras 20736* (LL, paratype), tree, 35 ft. high, 8 in. diam., fruit reddish.

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CAPPARIDACEAE

Capparis izabalana Lundell, Wrightia 5: 75. 1975. Plate 44.
Guatemala: Dept. Izabal, Cadenas, in high forest, *zapotal*, on Arenales Road about 5 km. west of the village, Feb. 16, 1975, *C. L. Lundell & Elias Contreras 18981* (LL, holotype), shrub, 12 ft. high, 2 in. diam., young fruits green. Dept. Peten, Los Arcos, km. 143 of Cadenas Road, in high forest, west, Dec. 8, 1969, *Contreras 9300* (LL, UTD), shrub, 9 ft. high, 2 in. diam.

Capparis mayana Lundell, Wrightia 5: 356. 1977. Plate 45.
Guatemala: Dept. Peten, La Cumbre, in *zapotal* on top of hill, south of Rio Pusila Road about 3.5 km., March 21, 1977, *C. L. Lundell & Elias Contreras 20630* (LL, holotype), small tree, 20 ft. high, 3 in. diam., flowers whitish.

MALPIGHIACEAE

Banisteriopsis speciosa Small, N. Amer. Fl. 25: 133. 1910.
Woody vine, glabrous except for a few appressed hairs on new growth, drying blackish; leaves coriaceous, petiolate, the petioles blackish, stout, canaliculate, up to 1.3 cm. long, sparsely sericeous at first; leaf blades mostly ovate-oblong, up to 14 cm. long, 6 cm. wide, those of flowering branches smaller, apex acuminate, base rounded, biglandular adjacent to midrib, the primary veins 4–6-pairs with fine but rather conspicuous ladder-like cross venation, at first with scattered appressed hairs beneath; inflorescences axillary and terminal, the terminal umbels in pedunculate panicles, essentially glabrous; bractlets small, inconspicuous; pedicels slender, sessile, up to 2 cm. long at anthesis, articulate at base; calyx glandular, the sepals imbricate, ovate, about 3 mm. long, with basal glands rounded or ellipsoid, less than half as long as sepals, the margin of sepals hairy, rounded at apex; petals yellow, unequal, glabrous, unguiculate, the stalk about 3 mm. long, the blade suborbicular, up to 8 mm. in diameter, the margin conspicuously dactylose; stamens 10, unequal, fertile; ovary hirsute; styles 3, erect, about 3 mm. long; stigmas capitellate, flattened.

Guatemala: Dept. Baja Verapaz, Niño Perdido, Cerro Verde, in high forest on hillside, May 17, 1977, *C. L. Lundell & Elias Contreras 20893* (LL), woody vine, petals yellow.

The type of this showy little known taxon was collected at Coban in the adjacent mountains of Alta Verapaz. *B. speciosa* appears to be amply distinct from *Banisteriopsis elegans* (Triana & Planch.) Sandwith of South America.

Bunchosia Gentlei Lundell, sp. nov.—Arbor parva; ramuli glabrati; folia glabra, petiolata, petiolo 3–6 mm. longo; lamina chartacea, anguste lanceolata, 8–18 cm. longa, 1.6–3 cm. lata, raro ad 4.5 cm. lata, apice acuminata vel caudato-acuminata, basi acuta vel acuminata, subtus multiglandulosa; inflorescentia sericea, 3–12.5 cm. longa; pedicelli 2–3 mm. longi; sepala late ovato-oblonga, ciliata, glandulosa; petala unguiculata, glanduloso-dentata, usque 9 mm. longa; ovarium hirsutum.

Small tree or shrub about 3 m. tall, 5 cm. in diam., the branchlets slender, sericeous at first, glabrate early, reddish; leaves glabrous, with short canaliculate petioles sometimes up to 6 mm. long; leaf blades chartaceous, linear-lanceolate, up to 18 cm. long, usually less than 3 cm. wide, rarely up to 4.5 cm. wide, acuminate or caudate-acuminate, base acute or acuminate, decurrent on petiole, with 7–11-pairs of very slender veins, glands on lower surface 3–12, scattered over entire blade, mostly small and rounded, the margin minutely irregular; inflorescences silvery-sericeous, axillary, racemose, mostly short but sometimes up to 12.5 cm. long in fruit; pedicels 2–4 mm. long, jointed and bracteolate above base; sepals sericeous, ciliate, extending 1 mm. or so above glands, rounded, the glands about 2.5 mm. long; petals subequal, up to 9 mm. long, unguiculate, the stalk short, the blade broad, gladular-dentate; ovary and style appressed pubescent, the stigma large, flattened; drupes shallowly 2- or 3-lobed, up to 1.4 cm. in diam.

Guatemala: Dept. Izabal, Puerto Mendez (Cadenas), on Rio Dulce Road, bordering Rio Sehila, km. 28, Sept. 21, 1970, *Elias Contreras 10323* (UTD; holotype; LL, isotype), shrub, 10 ft. high, 2 in. diam., flowers yellow.

British Honduras: Toledo District, in broken ridge, river bank of Moffredye Creek near San Antonio, Dec. 3, 1944, *Percy H. Gentle 5046* (LL, UTD), small tree.

Apparently related to *B. lanceolata* Turcz., but differing at once in its very narrow long mostly caudate-acuminate leaves with as many as twelve glands scattered over the length of the blade on the lower surface. In the numerous collections of *B. lanceolata* at hand from the same area, the leaves have only two glands near the base of blade.

Bunchosia ocellata Lundell, sp. nov.—Arbor, ramulis glabratis, gracilis; folia petiolata, petiolo 2–3 mm. longo; lamina glabra, membranacea, biocellata, lanceolata, 8.5–13 cm. longa, 2.7–4.5 cm. lata, apice acuminata, basi acutiuscula; inflorescentia pauciflora, parce sericea, 3–5 cm. longa; pedicelli gladulosi, ad 7 mm. longi; sepala ca. 3 mm. longa, biglandulosa, apice oblongo-rotundata; ovarium glabrum.

Small tree, about 20 cm. in diam., the branchlets slender, rather sparsely sericeous at first, glabrous early; leaves with short petioles up to 3 mm. long, the petioles canaliculate; sparsely sericeous early; leaf blades glabrous, membranaceous, up to 13 cm. long, 4.5 cm. wide, acuminate, the acumen usually obtusish, base broad and acutish, usually with two large blackish glands on blade about 1 cm. above base, the glands visible on both surfaces, the primary lateral veins slender, 7–10-pairs; inflorescences (with young fruit) small, with rachis up to 5 cm. long, sericeous at first, pedicels sericeous below joint, glabrous above, up to 7 mm. long, the joint with bractlets and large slightly elevated saucer-like gland up to 1.5 mm. in diam.; sepals biglandular, about 3 mm. long, oblongish and rounded above glands; ovary glabrous; fruits ovoid, fully 1 cm. long, yellow at maturity.

British Honduras: Toledo District, in high ridge, on hilltop near Central

Camp, Edwards Road beyond Columbia, May 16, 1951, *Percy H. Gentle 7331* (UTD, holotype; LL, isotype), tree, 8 in. diam., berries yellow.

The eye-like large black glands on leaf blade above base, combined with the short petioles, pedicels with large elevated gland at joint, and glabrous ovary are features which well-mark the species. *B. ocellata* probably has affinity to *B. lanceolata* Turcz., which has a sericeous ovary and style, and differs otherwise in leaf characteristics.

Heteropteris belizensis Lundell, sp. nov. — Liana speciosa, ramulis rufo-sericeis; folia chartacea vel subcoriacea, sericea, petiolata, petiolo ad 1.2 cm. longo, medio biglanduloso; lamina supra glabrata, subtus glandulosa, dense aureo-rufosericea, ovato-elliptica vel oblongo-lanceolata, ad 15 cm. longa, 6.5 cm. lata, apice subacuminata vel acuta, subintegra, basi rotundata, venis primariis 7- vel 8-jugis; inflorescentia axillaris et terminalis, paniculata, ad 20 cm. longa, bracteata, rufo-sericea; pedicelli 8–11 mm. longi; flores umbellati, ca. 1.2 cm. diametro; sepala lanceolata, rufo-sericea, ca. 3 mm. longa, apice obtusa, glandulosa; petala flava, parva, glabra, 4–5.5 mm. longa, unguiculata, lamina ovato-oblonga, 3–4 mm. longa, subintegra vel lacerata, basi emarginata, apice rotundata; stamina 10; ovarium rufo-sericeum; styli 3, crassi.

A conspicuous liana with leaves golden-brown on lower surface like *Chrysophyllum*, the branchlets rufous-sericeous, glabrate; leaves sericeous at first glabrate and shiny above, densely and persistently golden-brown sericeous beneath, petiolate, the petioles canaliculate, up to 1.2 cm. long, with two glands at the middle; leaf blades ovate-elliptic or oblong-lanceolate, up to 15 cm. long, 6.5 cm. wide, mostly smaller, apex subacuminate or acute, the margin subentire, base mostly rounded, with 7- or 8-pairs of arcuately ascending primary veins, these with conspicuous glands near margin; inflorescence rufous-sericeous, axillary or in large terminal leafy panicles up to 20 cm. long, the internodes of inflorescence compressed, enlarged apically, the leaves reduced to bracts above; flowering stalks up to 11 mm. long, bibracteolate at or above middle; flowers mostly in small terminal umbels, up to 1.2 cm. diam.; sepals lanceolate, rufous-pubescent, fully 3 mm. long, obtuse at apex, with large oblongish glands only slightly shorter than sepals; petals yellow, glabrous, ovate-oblong or oblongish, 4–5.5 mm. long including claw, the blades 3–4 mm. long, subentire to short lacerate, the stalk thick, short; stamens 10, glabrous, the filaments united one-third to two-thirds, the anthers fertile; ovary rufous-sericeous; styles 3, suberect, glabrous, thick, about 1.4 mm. long, the stigma borne on ventral edge of dilated apex of style.

British Honduras: Toledo District, in cohune ridge, between Condemned Branch Pine Ridge and Moffredye Lagoon, Aug. 20, 1946, *Percy H. Gentle 6034* (UTD, holotype; LL, isotype), woody vine, flowers yellow.

A very showy taxon with golden-brown leaves suggestive of *Chrysophyllum*. The somewhat compressed internodes of the inflorescence and the petioles with two glands at the middle are noteworthy features.

Heteropteris Gentlei Lundell, sp. nov. — Arbor parva, ramulis glabratis; folia coriacea, glabratis, petiolata, petiolo crasso, 4–8 mm. longo; lamina lanceolata, 9–19 cm. long, 3–6.5 cm. lata, apice attenuata, obtusa,

basi obtusa vel rotundata, supra lucida, subbullata, venis primariis 7–9-jugis; inflorescentia rufo-subsericea, racemoso-paniculata, ad 25 cm. longa, terminalis; pedicelli, 8–12 mm. longi; flores ca. 1.5 cm. diametro; sepala rufo-subsericea, lanceolata, ca. 4 mm. longa, apice reflexa, glandulosa vel eglandulosa; petala glabra, flava, ad 9 mm. longa, unguiculata, lamina suborbicularia, 3–5 mm. longa, eroso-denticulata; stamina 10; ovarium minute rufo-subsericeum; styli 3; samarae minute rufo-pubescentes; nux ca. 8 mm. longa; ala semicirculum superans paulo ultra 1.5 cm. longa et fere 2.5 cm. lata.

Small tree; branchlets glabrous early, lenticellate; leaves finely sericeous at first, glabrous early, firmly coriaceous, petiolate, the petioles thick, canaliculate, eglandular, 4–8 mm. long; leaf blades lanceolate, up to 19 cm. long, 6.5 cm. wide, usually narrower, attenuate to the obtuse apex, base rounded or obtusish, shining and subbullate above, the primary lateral veins 7–9-pairs, elevated and conspicuous beneath, areolate; inflorescence terminal, up to 25 cm. long, the racemes in broad lax panicles, minutely rufo-subsericeous; pedicels (including peduncles) up to 12 mm. long, articulate and bibracteolate about one-third above base; calyx rufous pubescent, about 4.5 mm. long, the sepals united at base, lanceolate, about 4 mm. long, with reflexed obtuse apex, glandular or eglandular, the glands ellipsoid, up to 2 mm. long; petals yellow, glabrous, very unequal, unguiculate, up to 9 mm. long, the stalk subequalling blade, the blade ovate-orbicular, 3–5 mm. long, with erose-denticulate margin; stamens 10, the filaments united at base; ovary minutely rufous-sericeous; styles 3, the stigma borne on ventral edge of dilated apex of style; samaras minutely rufous-pubescent, large, with wing up to 1.5 cm. long, 2.5 cm. wide.

British Honduras: Toledo District, in *acahual* (second growth) near Orange Point, Sept. 26, 1951, *Percy H. Gentle 7451* (UTD, holotype; LL, isotype), tree, 5 in. diam., flowers yellow.

H. Gentlei is closely related to *H. Lindeniana* Juss. differing markedly in its large subbullate leaves with prominent lateral veins, and in having large well developed samaras up to 2.5 cm. wide.

Heteropteris petenensis Lundell, sp. nov. — Liana, ramulis rufo-sericeis, glabratis, lenticellatis; folia chartacea, supra glabra, subtus dense sericea, petiolata, petiolo 5–13 mm. longo; lamina lanceolata, elliptica vel obovata, 7.5–13 cm. longa, 4–6.5 cm. lata, apice acuta vel subacuminata, basi acuta, venis primariis 6- vel 7-jugis; inflorescentia adpresse rufo-pubescentia, axillaris et terminalis, paniculata, 4–20 cm. longa, pedunculata; pedicelli fructiferi ad 8 mm. longi, crassi, lenticellati, basi bracteolati; flores ignoti; sepala lanceolata, erecta, 2.5–3.5 mm. longa, rufo-pubescentia, apice obtusiuscula, glandulosa; stamina 10; ovarium adpresse rufo-tomentosum; styli 3; samara matura 4–5 cm. longa, minute adpresse rufo-pubescentia, basi subauriculata, apice ad 2 cm. lata.

Woody vine, the branchlets glabrate early, lenticellate; leaves persistently silvery-sericeous beneath, glabrous above, chartaceous, the petioles usually about 8 mm. long, sometimes up to 13 mm. long, canaliculate; leaf blades eglandular or sometimes with two glands near base beneath, lanceolate, elliptic or obovate, up to 13 cm. long, 6.5 cm. wide, acute or subacuminate at apex, acutish at base, the primary lateral veins slender,

widely arcuately ascending, mostly 6- or 7-pairs, not reticulate; inflorescences axillary and terminal, paniculate, the terminal up to 20 cm. long, pedunculate, rufous-pubescent with adpressed hairs; pedicels of fruits up to 8 mm. long, bracteolate at base; sepals lanceolate, mostly biglandular, rufous-pubescent, erect, up to 3.5 mm. long, obtusish at apex, the glands up to 2 mm. long; stamens 10, unequal, with filaments thin, united one-half to three-fourths; anthers ovate-oblong, about 1.2 mm. long; ovary minutely rufous-pubescent; styles 3, suberect, glabrous; stigmas borne on ventral edge of dilated apex of styles; mature samaras solitary, 4–5 cm. long, the wing thin, finely sericeous, auricled at base on ventral side, somewhat constricted above auricle, dilated and up to 2 cm. wide above, the body crownless, veiny.

Guatemala: Dept. Peten, Rio Pasion, San Juan de Acul, in high forest on rocky shore of the lake, Feb. 11, 1964, *C. L. Lundell 17944* (UTD, holotype; LL, isotype), woody vine; San Luis, km. 116 of Cadenas Road, in high rain forest on Los Cerros de San Luis, Nov. 12, 1966, *Elias Contreras 6582* (LL, UTD), vine, young fruit green.

H. petenensis and *H. belizensis* Lundell appear to be closely related. The petioles of *H. petenensis* are glandless, and the pedicels are sessile, bracteolate at base.

Mascagnia macrobracteata Lundell, sp. nov. – Liana; ramuli albo-sericei; petioli 7–15 mm. longi; lamina chartacea, glandulosa, glabrata, elliptica vel lanceolato-elliptica, ad 15 cm. longa, 8.5 cm. lata, apice subabrupte acuminata, basi rotundata, venis primariis ca. 8-jugis; inflorescentia terminalis, paniculata, ad 20 cm. longa, albo-sericeo-tomentosa, macrobracteata, pauciflora, pedunculata: pedicellata; calyx sericeus, glanduliferus, ca. 4 mm. longus; petala flava, glabra, unguiculata, lamina elliptica, 6.5–9 mm. longa, basi emarginata, margine subintegro; stamina 10, fertilia; ovarium pilosum; styli 3, inaequales.

Woody vine, the branchlets sericeous with white hairs, rather slender; leaves sericeous at first, essentially glabrous at maturity, the petioles rather slender, canaliculate, up to 1.5 cm. long; leaf blades rather pallid, chartaceous, with scattered glands on lower third of blade beneath, the blades elliptic, lanceolate-elliptic or sometimes wider above the middle, 8–15 cm. long, 4–8.5 cm. wide, apex rather abruptly short acuminate or acute, base truncate-rounded or sometimes emarginate, the primary lateral veins slender, mostly 8-paired; inflorescence of large lax terminal panicles with conspicuous foliaceous bracts, white-tomentose with subappressed hairs, the peduncles elongated, the bracts persistent, ovate and petiolate, sericeous, acute at apex, mostly 1–2.5 cm. long, the larger basal; flowers few, in pedunculate umbels, the pedicels usually short, up to 1 cm. long, jointed and bibracteolate at middle, the bracteoles rounded, thin, essentially glabrous; calyx body about 4 mm. long, with large shiny ellipsoid glands covering most of the surface, the exposed apex of the calyx lobes sericeous, ovate-rounded; petals yellow, glabrous, unequal, unguiculate, the stalk 2–3 mm. long, the blade elliptic, up to 9 mm. long, emarginate or subhastate at base, rounded at apex, the margin irregular, subentire; stamens 10, fertile; ovary pilose with erect hairs; styles 3,

glabrous, two thick and well developed, reflexed at apex, the third slender, erect; stigmas of the two reflexed styles large, spreading.

Guatemala: Dept. Peten, km. 116 of San Luis Road, in high forest on hill, Nov. 12, 1966, *Elias Contreras 6585* (UTD, holotype; LL, isotype), woody vine, petals yellow; Dolores, Oct. 12, 1961, *Contreras 3089* (LL, UTD).

British Honduras: Toledo District, between Monkey River and Cockscomb, Monkey River, in high ridge, Nov. 20, 1942, *Percy H. Gentle 4234* (LL, UTD), woody vine, flowers yellow; also, *Gentle 6328* (LL, UTD) on Edwards Road beyond Columbia.

Very distinctive are the very large lax terminal panicles, conspicuously bractrate with ovate bracts up to 2.5 cm. long, the large glands covering the calyx body up to 4 mm. long, large glabrous unguiculate petals with subentire margin, and styles with only two developed, the third slender and abortive. The leaf has scattered glands over the lower third of blade.

Of possible affinity to *M. sepium* (Juss.) Griseb., as treated by Niedenzu in his monograph, *M. macrobracteata* differs in its large bracts, flowers almost twice as large, and in its sparser pubescence, the leaves being essentially glabrous at maturity.

Stigmaphyllon chiapense Lundell, sp. nov. — Liana, ramulis sericeis; folia novella sericea; petioli 0.7–2.3 cm. longi; lamina subcoriacea, glabrata, basi glandulosa, elliptica vel lanceolato-elliptica, 5–9.5 cm. longa, 2.5–5.5 cm. lata, apice acuta, basi acutiuscula, venis primariis 4- vel 5-jugis; inflorescentia erecta, sericea, axillares et terminalis, paniculata, pedunculata, ad 10 cm. longa; pedicelli ad 1.7 cm. longi; flores 2–2.5 cm. diam.; calyx sericeus, glanduliferus, ca. 3 mm. longus, lobis ovatis, obtusis; petala sericea, unguiculata, lamina ovato-orbicularia, eroso-lacerata, ad 1 cm. longa, basi acutiuscula; stamina et staminodia 10, 3–5 fertilia; ovarium sericeum; styli 3, aequales, sericei.

Woody vine, the branchlets sericeous at first, the pubescence brownish; leaves rather small, sericeous at first, glabrate, petiolate, the petioles up to 2.3 cm. long, mostly about 1 cm. long; leaf blades subcoriaceous, elliptic or lanceolate-elliptic, up to 9.5 cm. long, 5.5 cm. wide, smaller on flowering branches, acute at apex, acutish at base, the margin entire, the primary lateral veins slender, 4- or 5-pairs; inflorescences erect, sericeous with dark brown hairs, axillary and terminal, paniculate, with peduncles shorter than flowering section; flower stalks up to 1.7 cm. long, articulate and bibracteolate above base; flowers 2–2.4 cm. in diam.; calyx sericeous, glandular, about 3 mm. long, the glands small, suborbicular, up to 1.3 mm. long, the lobes ovate, obtuse; petals unequal, sericeous below middle dorsally, unguiculate, the stalk up to 2 mm. long, the blade ovate-orbicular, up to 1 cm. long, rounded and acutish at base, the margin erose-lacerate; stamens and staminodia 10, with 3 to 5 fertile, the others with abortive smaller anthers, variable from flower to flower; the filaments united at base; ovary sericeous; styles 3, equal or nearly so, erect but spreading, sericeous; stigmas laterally enlarged, conspicuous.

Mexico: Chiapas, Carelas, near Motozintla, alt. 2176 m., April, 1945, *Eizi Matuda 5510* (UTD, holotype; LL, isotype), woody vine.

There appear to be several additional undescribed species of *Stigma-*

phyllon in the Maya area. A revision of the genus is necessary to determine the relationships of the taxa.

SAPINDACEAE

Cupania clavelligera Lundell, Phytologia 34: 369. 1976. Plate 46.
Guatemala: Dept. Izabal, El Estor, in high forest, March 25, 1972, *Elias Contreras 11545* (LL, holotype; UTD, isotype), tree, 20 ft. high, 4 in. diam., flowers creamish-white.

Cupania longicaudata Lundell, Wrightia 5: 239. 1976. Plate 47.
Guatemala: Dept. Peten, Cadenas, in high forest, bordering Rio Sarstun, km. 170/171 of road, March 14, 1967, *Elias Contreras 6747* (LL, holotype; UTD, isotype), tree, 100 ft. high, 30 in. diam., flowers white.

MALVACEAE

Hampea bracteolata Lundell, Wrightia 5: 357. 1977. Plate 48.
Guatemala: Dept. Baja Verapaz, Niño Perdido, in high forest on top of hill, east of km. 150/151 of Coban Road, Aug. 29, 1975, *C. L. Lundell & Elias Contreras 19756* (LL, holotype), tree, 50 ft. high, 10 in. diam., fruit greenish; same locality, on Cerro Verde, Dec. 3, 1976, *Lundell & Contreras 20427* (LL).

Hampea ovatifolia Lundell, Wrightia 4: 140. 1970; Wrightia 5: 358. 1977. Plate 49.
Guatemala: Dept. Peten, La Cumbre, in high forest on top of rocky hill, west of km. 142 of Cadenas Road, Aug. 9, 1969, *Elias Contreras 8877* (LL, holotype), tree, 35 ft. high, 3 in. diam., fruits greenish.
Additional collections in flowers (l.c., p. 358) are in the Lundell Herbarium.

MELASTOMATACEAE

Clidemia Lundellii Wurdack, Wrightia 5: 227. 1976. Plate 50.
Guatemala: Dept. Baja Verapaz, Union Barrios, hilltop in high forest west of km. 159, Aug. 13, 1975, *C. L. Lundell & Elias Contreras 19626* (US, holotype; LL, UTD, isotypes), shrub, 3 ft. high, flowers white; Union Barrios, high forest on hilltop 3 km. west of Salama-Coban Road, Feb. 8, 1975, *Lundell & Contreras 18958* (LL, paratype), shrub, 7 ft. high, fruit green.

Miconia Lundelliana L. Wms., Fieldiana, Bot. 29: 573, *t. 17*. 1963. Plate 51.
British Honduras: Stann Creek District, in pine ridge, Mullins River Pine Ridge, Feb. 2, 1955, *Percy H. Gentle 8561* (LL, holotype), small tree, flowers white.

HALORRHAGIDACEAE

Gunnera Killipiana Lundell, Phytologia 1: 452. 1940. Plate 52.
Mexico: Chiapas, Volcan de Tacana, alt. 1400 m., March 17–23, 1939, *Eizi Matuda 2763* (LL, holotype).

The specimen in the Lundell Herbarium, which I designate as the holotype (Plate 52), was annotated by E. P. Killip in 1940 as follows: *Gunnera* n.sp. near *insignis* Oerst.

SAPOTACEAE

Bumelia durangensis Lundell, Wrightia 5: 90. 1975. Plate 53.
Mexico: Durango, edge of Rio Piaxtla, near Guarisame, April 9, 1943, *C. L. Lundell 13000* (LL, holotype; MICH, isotype), tree, 12 in. diam., 40 ft. high, fruits edible, "*cupilla.*"

Bumelia Ibarrae Lundell, Wrightia 5: 168. 1975 Plates 54, 55.
Guatemala: Dept. Baja Verapaz, Union Barrios, in high forest on top of hill, west of km. 159 of road, Aug. 12, 1975, *C. L. Lundell & Elias Contreras 19619* (LL, holotype), tree, 50 ft. high, 12 in. diam., flowers white, "*zapote faisan*"; same locality, June 14, 1975, *Lundell & Contreras 19453* (LL); Aug. 12, 1975, *Lundell & Contreras 19617* (LL); Aug. 14, 1975, *Lundell & Contreras 19639* (LL); same locality, west of km. 161/162, Aug. 20, 1975, *Lundell & Contreras 19699* (LL); *Lundell & Contreras 19703* (LL), "*zapote faisan*"; Niño Perdido, in high forest, on top of hill, east of km. 150/151, Aug. 92, 1975, *Lundell & Contreras 19752* (LL), tree, 50 ft. high, 8 in. diam., flowers white; same locality, Aug. 30, 1975, *Lundell & Contreras 19763* (LL), *Lundell & Contreras 19767* (LL).

Bumelia Matudae (Lundell) Stearn, Journ. Arn. Arb. 49: 287. 1968.
Sideroxylon Matudai Lundell, Phytologia 1: 221. 1937. Plate 56.
Mexico: Chiapas, Mt. Ovando, Dec. 16, 1936, *Eizi Matuda 571* (MICH, holotype); Mt. Ovando, in forest, alt. 900 m., July 1–16, 1960, *Matuda 4175* (MICH).

At the request of the late Eizi Matuda, when he started collecting in Chiapas, all the earlier species named by me in his honor are spelled "*Matudai*" rather than "*Matudae.*" He stated that he would stop collecting if I used "*Matudae*" as the specific epithet, for he would consider that an insult.

My spelling "*Matudai*" is an orthographic error, as Stearn (Journ. Arn. Arb. 49: 287. 1968), along with others earlier, have noted, but I was fully aware that the genitive of Matuda is "*Matudae.*" I made the pragmatic decision not to "insult" but rather to encourage a distinguished field botanist and taxonomist, and to follow his request. This accounts for my using "*Matudai*" in "error."

Bumelia megaphylla Blake, Contr. Gray Herb. n.s. 52: 76. 1917. Plate 57.
British Honduras: Toledo District, in forest, Rio Grande, March 25, 1907, *M. E. Peck 756* (GH, holotype), a small or medium-sized tree with hard light-colored wood.

The taxon is considered a synonym of *B. pleistochasia* Donn. Sm. in recent treatments of the genus. The large series of flowering and fruiting lowland collections in the Lundell Herbarium are remarkably uniform, and this disposition of the species needs further evaluation.

Bumelia sebolana Lundell, Wrightia 5: 91. 1975. Plate 58.
Guatemala: Dept. Alta Verapaz, Sebol, in high forest on top of a hill,

about 5 km. on old Peten Road, April 18, 1964, *Elias Contreras 4411* (LL, holotype), tree, 15 ft. high, 2 in. diam.

Bumelia Stevensonii (Standl.) Stearn, Journ. Arn. Arb. 49: 289. 1968. *Dipholis Stevensonii* Standl., Trop. Woods 11: 21. 1927. *Sideroxylon rufotomentosum* Standl., Carnegie Inst. Wash. Publ. 461: 79. 1935. Plates 59, 60.

Guatemala: Dept. Peten, La Cumbre, about 4.5 km. from village, north of Pusila Road, in *zapotal* on top of hill, Aug. 30, 1976, *C. L. Lundell & Elias Contreras 20282* (LL), tree, 80 ft. high, 25 in. diam., flowers white, aromatic; La Cumbre, Sapurul, in *zapotal* on top of hill, SWW, April 11, 1977, *Lundell & Contreras 20775* (LL), tree, 25 ft. high, 4 in. diam., fruit green, "*zapote faisan.*"

The species is represented in the Lundell Herbarium by numerous collections from the rain forest of southern Belize and southeastern Peten. It is well-marked by its large leaves and rufous tomentum.

Bumelia tabascensis Lundell, Contr. Univ. Mich. Herb. 5: 22. 1940. *Dipholis tabascensis* (Lundell) Lundell, Wrightia 5: 196. 1975. Plate 61.

Mexico: Tabasco, Retiro near Tenosique, in virgin forest, June 19–25, 1939, *Eizi Matuda 3455* (LL, isotype), tree, 18 m. tall, 35 cm. diam.

Micropholis guatemalensis Lundell, Wrightia 5: 92. 1975. Plate 62.

Guatemala: Dept. Izabal, in high forest, *corozal*, between Cienega and Seja, Rio Dulce Road, May 4, 1971, *Elias Contreras 10713* (LL, holotype), tree, 100 ft. high, 25 in. diam., flowers greenish-white, "*zapotillo*"; same locality, May 5, 1971, *Contreras 10732* (LL), tree, 80 ft. high, 18 in. diam., flowers greenish-white, "*zapotillo.*"

Micropholis mexicana Gilly ex Cronquist, Lloydia 9: 257. 1946. *Sideroxylon calophylloides* Lundell, Contr. Univ. Mich. Herb. 6: 56. 1941, non *M. calophylloides* Pierre. *Pouteria calophylloides* (Lundell) Lundell, Wrightia 5: 6. 1972. Plate 63.

Mexico: Chiapas, Mt. Ovando, in virgin forest, alt. 900 m., July 1–16, 1940, *Eizi Matuda 4195* (LL, isotype), tree, 20 m. high, 50 cm. in diam., fls. white.

Peteniodendron belizense Lundell, Wrightia 5: 254. 1976. *Paralabatia belizensis* (Lundell) Lundell, Wrightia 5: 350. 1977. Plate 64.

British Honduras: El Cayo District, in cohune ridge, base of hill, Humming Bird Highway, April 20, 1955, *Percy H. Gentle 8679* (LL, holotype, genus and species), tree, 9 in. diam., flowers (staminate) white, scented, "*mammy cedrela.*"

Among the Sapotaceae of the Maya Area, this taxon ranks among the commonest trees, and it is represented in the Lundell Herbarium by numerous collections from Peten and elsewhere.

Peteniodendron estoriense (Lundell) Lundell, Wrightia 5: 320. 1976. *Pouteria estoriensis* Lundell, Wrightia 5: 181. 1975. *Paralabatia estoriensis* (Lundell) Lundell, Wrightia 5: 350. 1977. Plate 65.

Guatemala: Dept. Izabal, El Estor, in high forest, bordering Lake Izabal, El Zapotillo east, May 19, 1975, *C. L. Lundell & Elias Contreras*

19315 (LL, holotype), tree, 35 ft. high, 6 in. diam., flowers greenish-white; same locality and date, *Lundell & Contreras 19309* (LL).

Both *P. estoriensis* and *P. Lundellii* appear to be rare, for each species has been collected only twice. There is some uncertainty whether or not the species are dioecious. Until fruits are collected, as well as a series of flowering specimens, the generic position of the two trees will remain doubtful. Their leaves are unlike those of the other three taxa referred to *Peteniodendron.*

Peteniodendron Lundellii (Standl.) Lundell, Wrightia 5: 320. 1976. *Sideroxylon Lundellii* Standl., Publ. Carnegie Inst. Wash. 461: 79. 1935. *Pouteria Lundellii* (Standl.) L. Wms., Fieldiana, Bot. 31: 264. 1967. *Paralabatia Lundellii* (Standl.) Lundell, Wrightia 5: 350. 1977. Plate 66.

Guatemala: Dept. Peten, Santa Teresa, Subin River, April 12, 1933, *C. L. Lundell 2767* (LL, MICH, isotypes).

Mexico: Tabasco, Balancan, Achotal, in advanced forest, May 9–14, 1939, *Eizi Matuda 3073* (MICH), tree, 8–10 m. high, 30–40 cm. diam.

Peteniodendron potosinum (Lundell) Lundell, Wrightia 5: 255. 1976. *Pouteria potosina* Lundell, Wrightia 5: 101. 1975. *Paralabatia potosina* (Lundell) Lundell, Wrightia 5: 350. 1977. Plates 67, 68.

Mexico: San Luis Potosi, Tamazunchale, on mountain side, near Moctezuma River above Tamazunchale, July 15, 1943, *C. L. Lundell 12262* (LL, holotype, pistillate flowers), tree, 8 in. diam., 25 ft. high, corolla greenish; Tamazunchale, in forest on hillside, alt. 300 m., July, 1937, *C. L. & Amelia A. Lundell 7199* (LL, paratype, staminate flowers), tree, diam. 15 cm., height 12 m., corolla white; vicinity of Tamazunchale, *C. L. Lundell 12254* (LL).

Pouteria areolatifolia Lundell, Wrightia 5: 93. 1975. Plate 69.

Guatemala: Dept. Peten, La Cumbre, on Cadenas Road, west of km. 144, in high forest, Aug. 2, 1969, *Elias Contreras 8835* (LL, holotype), tree, 120 ft. high, 35 in. diam., fruit brownish; La Cumbre, in *zapotal* on hill, 500 m. east of Las Cañas, km. 143 of the Peten/Izabal Road, Mar. 18, 1975, *C. L. Lundell & Elias Contreras 19116* (LL), tree 90 ft. high, 20 in. diam., *"silillon," "zapotillo"*; La Cumbre, in high forest, *zapotal*, east of km. 142 of the Cadenas Road, May 30, 1975, *Lundell & Contreras 19374* (LL), tree, 90 ft. high, 25 in. diam., fruit brown, *"zapotillo," "silion"*; La Cumbre, Caserio Sapurul, in *zapotal* between Sapurul and Las Pelotas, April 8, 1977, *Lundell & Contreras 20751* (LL), tree, 75 ft. high, 20 in. diam., fruit brownish; La Cumbre, in *zapotal*, Sapurul, SWW, April 9, 1977, *Lundell & Contreras 20761* (LL), tree, 90 ft. high, 25 in. diam., fruit brown, *"silillon," "sacquemuy."*

Only immature fruits and flower buds are available.

Pouteria briocheoides Lundell, Wrightia 5: 320. 1976. Plate 70.

Guatemala: Dept. Peten, La Cumbre, in *zapotal* on top of hill, about 1.5 km. east of km. 138 of the Cadenas Road, Sept. 4, 1976, *C. L. Lundell & Elias Contreras 20314* (LL, holotype), tree, 50 ft. high, 10 in. diam., fruit brownish, *"zapotillo"*; La Cumbre, Sapurul, in *zapotal* on hillside, SWW, April 11, 1977, *Lundell & Contreras 20773* (LL), *20774* (LL),

20776 (LL), *20777* (LL), tree, up to 35 ft. high, 5 in. diam., flowers whitish, "*zapotillo colorado.*"

Pouteria gallifructa Cronquist, Lloydia 9: 285. 1946. Plate 71.

British Honduras: Toledo District, Temash River, alt. 150 ft., March 2, 1935, *W. A. Schipp 1323* (MICH, isotype), tall upright tree, 90 ft. high, growing in primary forest, flowers greenish-white.

A series of Lundell and Contreras collections of both *P. gallifructa* and *Pouteria neglecta* Cronquist are in the Lundell Herbarium.

Pouteria mayana Lundell, Wrightia 5: 100. 1975. *Achras mayana* (Lundell) Lundell, Wrightia 5: 350. 1977. Plate 72.

Guatemala: Dept. Peten, El Ceibo, on La Libertad Road, 5 km., in high forest, *ramonal*, March 28, 1965, *Elias Contreras 5372* (LL holotype), tree, about 120 ft. high, 27 in. diam., fruit chocolate-brown, sweet, "*trompillo-o-camiste de montaña*"; Rosario-Sayaxche, tree, 10-15 cm. diam., 10 m. high, collector not designated (LL).

Although the seed are compressed and the seed-scar is linear, as in *Achras*, the venation of the leaves preclude its reference to that genus. The globose or subglobose sessile fruits are distinctive.

Pouteria neglecta Cronquist, Lloydia 9: 286. 1946. Plate 73.

British Honduras: Toledo District, Temash River, alt. 200 ft., April 7, 1935, *W. A. Schipp 1354* (MICH), holotype), small tree, 35 ft. high, in primary forest, flowers greenish, fruits gall like.

Flowers and fruits of this species and those of *P. gallifructa* Cronquist are much alike. The two taxa apparently are distinct, recognizable primarily on the basis of leaf differences.

Pouteria odorata Lundell, Wrightia 5: 182. 1975. Plate 74.

Guatemala: Dept. Baja Verapaz, Union Barrios, in high forest on hillside, west of km. 161/162, Aug. 22, 1975, *C. L. Lundell & Elias Contreras 19705* (LL, holotype), tree, 75 ft. high, 18 in. diam., flowers white, fragrant, "*zapotillo*"; same locality and date, *Lundell & Contreras 19711* (LL), tree, 70 ft. high, 15 in. diam.; Union Barrios, in high forest on hill, west of km. 160/161, Aug. 31, 1975, *Lundell & Contreras 19770* (LL), tree, 75 ft. high, 15 in. diam.; same locality and date, *Lundell & Contreras 19775* (LL), tree, 60 ft. high, 12 in. diam., "*zapotillo.*"

Pouteria petenensis Lundell, Wrightia 5: 6. 1972; Wrightia 5: 101. 1975. Plates 75,76.

Tree up to 40 m. high, the branchlets thick, the tips of the branchlets, the buds and young leaves densely covered with red closely appressed hairs, the mature growth glabrous; leaves large, petiolate, the petioles up to 5 cm. long, narrowly canaliculate above; leaf blades glabrous at maturity, thin, chartaceous, obovate or obovate-elliptic, 15–30 cm. long, 6–15 cm. wide, apex broadly obtuse, sometime short acuminate with obtuse acumen, base rounded and acutish, midvein prominent beneath, shallowly depressed above, the primary lateral veins slender but conspicuous, 10–14-pairs, the intermediaries evident on both surfaces, the surface paler beneath; flowers fasciculate on old wood at defoliated nodes;

pedicels slender, 3–4 mm. long, pubescent with short appressed reddish hairs; sepals 5, rarely 4, imbricate, unequal, the outer smaller, ovate or ovate-elliptic, 2.5–3.3 mm. long, apex rounded, finely appressed pubescent, ciliate, the reddish hairs densest at apex, sericeous within; corolla greenish, urceolate, 4 mm. long, 5-lobed, the lobes broadly ovate-rounded, about 1.3 mm. long, overlapping at sinuses, the apex subtruncate, reflexed, ciliate, the corolla otherwise glabrous; stamens 5, included, 3.8–4 mm. long, glabrous; filaments stout, free about 0.7 mm. above base of corolla tube; anthers basifixed, broadly ovate, about 1.2 mm. long, the apex rounded and sharply apiculate; staminodia none; ovary 5-lobed, hirsute with straight whitish hairs, 5-celled, with 1 lateral ovule in each cell; style glabrous, conical, thick, 5-angled, about 2.5 mm. long, the stigma capitate; mature fruits subsessile on thick pedicels, depressed globose, up to 3 cm. long, 4.5 cm. wide, depressed apically, drying pale, gray-brown, scurfy, the pericarp hard, thin, drying about 1.2 mm. thick, pulpy within; seed brown, shining, obovoid-ellipsoid, 2.1–2.6 cm. long, 1.2–1.5 cm. wide, compressed, slightly beaked at end, the lateral seed-scar linear, extending almost entire length of seed; endosperm none.

Guatemala: Dept. Peten, La Cumbre, on Cadenas Road, in high forest bordering the village, Sept. 26, 1966, *Elias Contreras 6240* (LL, holotype), tree, 90 ft. high, 18 in. diam., fruit chocolate-brown; Mar. 20, 1967, *Contreras 6793* (LL), tree, 60 ft. high, 14 in. diam., fruit yellow-gray; San Pedro, Cadenas Road, in high forest, Aug. 13, 1967, *Contreras 7011* (LL), tree, 90 ft. high, 30 in. diam., fruit chocolate; Cadenas, Sarstun River bank, east of the river, west of km. 170 of road, in high forest, Aug. 11, 1969, *Contreras 8897* (LL), tree, 70 ft. high, 18 in. diam., fruit green-gray; La Cumbre, Las Cañas, in *zapotal*, east of km. 142, bordering the Peten-Izabal Road, March 9, 1975, *Lundell & Contreras 19073* (LL), tree, 60 ft. high, 15 in. diam., flowers greenish-yellow, "*zapote comida de mico leon*"; La Cumbre, in *zapotal* on hill, west of km. 141/142 of the Peten-Izabal Road, March 13, 1975, *Lundell & Contreras 19095* (LL), tree, 70 ft. high, 15 in. diam., flowers greenish-yellow, "*zapote comida de mico leon*"; San Luis, bordering Arroyo Quebrada Seca, km. 122 of Cadenas Road, in *zapotal*, March 28, 1977, *Lundell & Contreras 20716* (LL), tree, 50 ft. high, 10 in. diam., fruit gray, "*zapote de mico*"; La Cumbre, Caserio Sapurul, in *zapotal*, April 6, 1977, *Lundell & Contreras 20726* (LL), tree, 70 ft. high, 15 in. diam., flowers greenish, "*zapote de mico*"; same locality and date, *Lundell & Contreras 20735* (LL), tree, 120 ft. high, 35 in. diam., fruit gray-green; La Cumbre, Caserio Sapurul, in *zapotal* on top of hill, between Sapurul and Las Pelotas, April 7, 1977, *Lundell & Contreras 20742* (LL), tree, 80 ft. high, 20 in. diam., flowers greenish; same locality, April 8, 1977, *Lundell & Contreras 20748* (LL), *20750* (LL), "*zapote de mico.*" Dept. Izabal, Cadenas, in high forest, *zapotal*, on Arenales Road, about 5 km. west of the village, Feb. 16, 1975, *Lundell & Contreras 18982* (LL), tree, 80 ft. high, 30 in. diam., fruits grayish, "*zapotillo,*" "*comida de mico leon.*"

Described originally from immature fruiting material, the additional collections of flowers and mature fruits confirm the reference of the species to *Pouteria* in the broad sense that the genus is accepted by Baehni, Cronquist and others. The ureolate corolla with 5 short ciliate lobes, stamens

free almost to base, the absence of staminodia, the flattened lustrous brown seed with linear seed-scar almost its entire length, and the absence of endosperm are features to be noted.

RUBIACEAE

Rondeletia albida Lundell, Wrightia 5: 323. 1976. Plate 77.
Mexico: Chiapas, Carelas, near Motozintla, alt. 2176 m., April, 1945, *Eizi Matuda 5509* (LL, holotype).

Rondeletia longipetiolata Lundell, Wrightia 5: 325. 1976. Plate 78.
Mexico: Chiapas, Mt. Ovando, near Escuintla, Nov. 14, 1945, *Eizi Matuda 6146* (LL, holotype).

Rondeletia ovandensis Lundell, Wrightia 5: 326. 1976. Plate 79.
Mexico: Chiapas, Mt. Ovando, near Escuintla, Oct. 24, 1941, *Eizi Matuda 6067* (LL, holotype), shrub.

Rondeletia pyramidalis Lundell, Wrightia 5: 327. 1976. Plate 80.
Mexico: Chiapas, San Luis, near Siltepec, alt. 1300 m., Jan. 24, 1945, *Eizi Matuda 5292* (LL, holotype)

Paratype of *Coccoloba itzana* Lundell, *C. L. Lundell & Elias Contreras 20736* (LL, UTD), Wrightia 5: 5, pl. 2. 1978.

Holotype of *Capparis izabalana* Lundell, *C. L. Lundell & Elias Contreras 18981* (LL), Wrightia 5: 75. 1975.

Holotype of *Capparis mayana* Lundell, *C. L. Lundell & Elias Contreras 20630* (LL), Wrightia 5: 356. 1977.

Holotype of *Cupania clavelligera* Lundell, *Elias Contreras 11545* (LL), **Phytologia 34: 369. 1976.**

Holotype of *Cupania longicaudata* Lundell, *Elias Contreras 6747* (LL), Wrightia 5: 239. 1976.

Holotype of *Hampea bracteolata* Lundell, *C. L. Lundell & Elias Contreras 19756* (LL), Wrightia 5: 357. 1977.

FLORA OF GUATEMALA
Department of El Petén
Hampea ovatifolia Lundell, sp. nov
TYPE!
Tree, 35 ft. high, 3 in. diam., fruits greenish.
La Cumbre, in high forest on top of rocky hill, west of km. 162 of Cadenas Road.
Elias Contreras No. 8877

Holotype of *Hampea ovatifolia* Lundell, *Elias Contreras 8877* (LL), Wrightia 4: 140. 1970.

Holotype of *Clidemia Lundellii* Wurdack, *C. L. Lundell & Elias Contreras 19626* (US), Wrightia 5: 227. 1976.

LUNDELL HERBARIUM
This specimen used for illustration of "Flora of Guatemala"
MELASTOMACEAE
Miconia Lundelliana L. Wms.
Small tree, flowers white; in pine ridge, Mullins River Pine Ridge.
No 8561
Dec February 2, 1959
TYPE

Holotype of *Miconia Lundelliana* L. Wms., *Percy H. Gentle 8561* (LL), Fieldiana, Bot. 29: 573, *t. 17*. 1963.

Holotype of *Gunnera Killipiana* Lundell, *Eizi Matuda 2163* (LL), Phytologia 1: 452. 1940.

Holotype of *Bumelia durangensis* Lundell, *C. L. Lundell 13000* (LL), Wrightia 5: 90. 1975.

Holotype of *Bumelia Ibarrae* Lundell, *C. L. Lundell & Elias Contreras 19619* (LL), Wrightia 5: 168. 1975.

Paratype of *Bumelia Ibarrae* Lundell, *C. L. Lundell & Elias Contreras 19639* (LL), Wrightia 5: 168. 1975.

Holotype of *Sideroxylon Matudai* Lundell, *Eizi Matuda 571* (MICH), Phytologia 1: 221. 1937. *Bumelia Matudae* (Lundell) Stearn.

Holotype of *Bumelia megaphylla* Blake, *M. E. Peck 756* (GH), Contr. Gray Herb. n.s. 52: 76. 1917.

Holotype of *Bumelia sebolana* Lundell, *Elias Contreras 4411* (LL), Wrightia 5: 91. 1975.

Flowering specimen of *Bumelia Stevensonii* (Standl.) Stearn, *C. L. Lundell & Elias Contreras 20282* (LL, UTD). *Dipholis Stevensonii* Standl. *Sideroxylon rufotomentosum* Standl.

Fruiting specimen of *Bumelia Stevensonii* (Standl.) Stearn. *C. L. Lundell & Elias Contreras 20775* (LL, UTD). *Dipholis Stevensonii* Standl.

Isotype of *Bumelia tabascensis* Lundell, *Eizi Matuda 3455* (LL), Contr. Univ. Mich. Herb. 5: 22. 1940. *Dipholis tabascensis* (Lundell) Lundell.

Holotype of *Micropholis guatemalensis* Lundell, *Elias Contreras 10713* (LL), **Wrightia 5: 92. 1975.**

PLANTS OF MEXICO
Sideroxylon calophylloides Lundell, sp. nov.
Type collection!
Tree, 20 m. high, 50 cm. diam., fls. white.
Mt. Cuanda, in virgin forest, alt. 900 m.
No. 4195
Date July 1-16, 194

Isotype of *Micropholis mexicana* Gilly ex Cronquist, *Eizi Matuda 4195* (LL), Lloydia 9: 257. 1946. *Sideroxylon calophylloides* Lundell, non *Micropholis calophylloides* Pierre. *Pouteria calophylloides* (Lundell) Lundell.

Holotype of *Peteniodendron belizense* Lundell, *Percy H. Gentle 8679* (LL), Wrightia 5: 254. 1976. *Paralobatia belizensis* (Lundell) Lundell.

ANNOTATION LABEL
DETERMINED BY C. L. LUNDELL
FLORA OF GUATEMALA
Lundell Herbarium
Pouteria estoriensis Lundell, sp. nov.
"Zapotillo" Tree, 35 ft. high, 6 in. diam..
Flowers greenish-white.
DEPARTMENT OF IZABAL: El Estor, in high forest bordering Lake Izabal, El Zapotillo east.
C. L. Lundell
Elias Contreras
No. 19315

Holotype of *Pouteria estoriensis* Lundell. *C. L. Lundell & Elias Contreras 19315* (LL), Wrightia 5: 181. 1975. *Peteniodendron estoriense* (Lundell) Lundell. ***Paralabatia estoriensis*** **(Lundell) Lundell.**

Isotype of *Sideroxylon Lundellii* Standl., *C. L. Lundell 2767* (MICH), Publ. Carnegie Inst. Wash. 461: 79. 1935. *Pouteria Lundellii* (Standl.) L. Wms. *Peteniodendron Lundellii* (Standl.) Lundell. *Paralabatia Lundellii* (Standl.) Lundell.

Holotype of *Pouteria potosina* Lundell, *C. L. Lundell 12262* (LL), Wrightia 5: 101. 1975. *Peteniodendron potosinum* (Lundell) Lundell. *Paralabatia potosina* (Lundell) Lundell.

Paratype of *Pouteria potosina* Lundell, *C. L. Lundell & Amelia A. Lundell 7199* (LL), Wrightia 5: 101. 1975. *Peteniodendron potosinum* (Lundell) Lundell. *Paralabatia potosina* (Lundell) Lundell.

Holotype of *Pouteria areolatifolia* Lundell, *Elias Contreras 8835* (LL), Wrightia 5: 93. 1975.

FLORA OF GUATEMALA .
Pouteria briocheoides Lundell, sp. nov.
TYPE!
"Zapotillo" Tree, 50 ft. high, 10 in. diam., fruit brownish.
DEPARTMENT OF PETEN: La Cumbre, in
top of hill, about 1.5 km. east of
of the Cadenas Road.
C. L. Lundell
Elias Contreras
No. 20314
Sept. 4,

Holotype of *Pouteria briocheoides* Lundell, *C. L. Lundell & Elias Contreras 20314* (LL), Wrightia 5: 320. 1976.

Isotype of *Pouteria gallifructa* Cronquist, *W. A. Schipp 1323* (MICH), Lloydia 9: 285. 1946.

Holotype of *Pouteria mayana* Lundell, *Elias Contreras 5372* (LL), Wrightia 5: 100. 1975.

Holotype of *Pouteria neglecta* Cronquist, *W. A. Schipp 1354* (MICH), **Lloydia 9: 286. 1946.**

Holotype of *Pouteria odorata* Lundell, *C. L. Lundell & Elias Contreras 19705* (LL), Wrightia 5: 182. 1975.

FLORA OF GUATEMALA
Lundell Herbarium
Pouteria petenensis Lundell
"Zapote de Mico" Tree, 70 ft. high, 15 in. diam., flowers greenish.
DEPARTMENT OF PETEN: La Gambre, Caseri Saporul, in zapotal.
C. L. Lundell
Elias Contreras
No. 20726
April 6, 1937

Flowering specimen of *Pouteria petenensis* Lundell, *C. L. Lundell & Elias Contreras 20726* (LL, UTD).

Fruiting specimen of *Pouteria petenensis* Lundell, *C. L. Lundell & Elias Contreras 20735* (LL, UTD).

Holotype of *Rondeletia albida* Lundell, *Eizi Matuda 5509* (LL), Wrightia 5: 323. 1976

Holotype of *Rondeletia longipetiolata* Lundell, *Eizi Matuda 6146* (LL), Wrightia 5: 325. 1976.

Holotype of *Rondeletia ovandensis* Lundell, *Eizi Matuda 6067* (LL), Wrightia 5: 326. 1976.

Holotype of *Rondeletia pyramidalis* Lundell, *Eizi Matuda 5292* (LL), Wrightia 5: 327. 1976.

LUNDELLIANTHUS, A NEW GENUS FROM GUATEMALA (HELIANTHEAE: ASTERACEAE)

Harold Robinson[1]

Two specimens from Guatemala represent an undescribed genus distinguishable by marked and traditionally recognized characters. The genus is named here in honor of Dr. C. L. Lundell of the University of Texas at Dallas from whom the material was obtained.

The new genus, *Lundellianthus*, is placed in the subtribe Verbesininae, but the limits of the immediate group of genera within that subtribe are worthy of special comment. *Lundellianthus* falls in the group of Heliantheae with paleaceous receptacles, with flowers not having prominent yellowish or reddish resin in the ducts, the rays bilobed or obscurely trilobed, the pubescence of the disk corollas mostly restricted to the lobes without prominent glands, the veins of the throat having associated fibers which often form prominent sheaths or even supplimentary strands, the anthers are black, the fertile styles have 2 stigmatic lines, the achenes flattened or compressed with carbonized walls not having striations, and the pappus consisting of awns or short setae or squamellae. The fibers in the disk corollas are not found in all members of the group, but they have not been seen in any species outside of the relationship. As such, the exact limits of the group remain to be defined, but relationship to *Verbesina* seems certain even though fibers have not been seen in the latter genus. The members of the group all share a similar form of disk corolla with straight but diverging sides of the throat and cells of the inside of the lobes more papillose toward the tips and margins. There is a strong tendency in the group for ray achenes to be broadly flattened with wings or lobes on the sides while the disk achenes are compressed with primary angles on the inner and outer surfaces.

In spite of the basic relationship now evident for the group, there are many marked character differences between the genera. There is a full range of forms from those with sterile ray flowers to those with sterile disk flowers. As a result the genera involved have been placed at various times in five different subtribes. The genera include *Synedrellopsis* Hieron. & O. Kuntze from the Milleriinae, *Rensonia* Blake, *Schizoptera* Turcz., and *Silphium* L. from the Melampodiinae, *Engelmannia* Torr. & A. Gray, *Berlandiera* DC., *Lindheimera* A. Gray & Engelm., and *Chrysogonum* L. recently placed in the Engelmanninae, *Wedelia* Jacq., at least the American species placed in *Aspilia* Thouars, *Zexmenia* Llav. & Lex., *Lasianthaea* DC., *Oyedaea* DC., and *Steiractinia* Blake of the Verbesininae and *Synedrella* Gaertn., and *Calyptocarpus* Less. [including subgenus *Oligogyne* (DC.) Baker of *Blainvillea*] from the Coreopsidinae. Except for those in the Engelmanninae most of these genera have recently been pulled together with others in the subtribe Ecliptinae by Stuessy (1977). *Blainvillea* Cass. and *Eleutheranthera* Poit ex Bosc. which resemble members of the group in habit differ in their floral details and seem to form another related group in the Verbesininae. Other genera such as *Perymenium*

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Schrad. and *Lipochaeta* DC. are traditionally placed close to genera in the group, but lack fibers and the latter has a different corolla form leaving exact relation in doubt.

Lundellianthus differs from all other members of the group by the regular biseriate involucre with 5 outer herbaceous bracts and 8 shorter inner scarious bracts. The ray achenes are broadly winged to the tips of the pappus awns. There is a series of fused squamellae across the inner apical margin of the achene but the outer side is completely glabrous. In contrast, the disk achenes are plain, being essentially quadrangular without wings or pappus. The disk achenes are sufficiently plain to suggest sterility, but they do enlarge and the walls blacken. Also, the disk styles have complete stigmatic lines and the ray styles are not expanded as in genera like *Rensonia* where only the rays are fertile. Further detailed differences of *Lundellianthus* are lack of any constriction at the top of the achenes as in *Wedelia* or *Steiractinia*, complete lack of any winged or awned structure on the disk achenes such as found in *Zexmenia*, *Lasianthaea*, *Oyedaea* or *Calyptocarpus*. The wings of the ray achenes are not lobed as in *Synedrella* or *Synedrellopsis*. The corolla lobes lack the long hairlike papillae on the inside margin as seen in *Schizoptera*, the pappus is not a series of short setae as in *Steiractinia*, and the ray achenes are not enclosed in complexes with the paleae as in the genera of the Engelmanninae. There are few fibers in the disk corollas and sheaths are not developed which contrasts particularly with the extreme fiber development in *Rensonia* and *Synedrellopsis*.

The distinctions of the new genus are such that it cannot be placed particularly close to any member of the group. *Lundellianthus* would seem to be one of the more interesting endemic elements in the Guatemalan flora.

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Lundellianthus petenensis H. Robinson, genus et species novum Asteracearum (Heliantheae subtribe Verbesininae).

Plantae suffrutescentes vel frutescentes ca. 1 m. altae? Caules purpurascentes teretes vel leniter striati antrorse strigosi. Folia opposita, petiolis 5–20 mm. longis anguste alatis, alis trans nodis connatis; laminae oblongo-ovatae 6–14 cm. longae et 2.0–5.5 cm. latae base obtusae vel rotundatae margine serratae vel serrulatae apice argute acuminatae supra scabridae subtus pilosulae in nervis et nervulis densius pilosulae fere ad basem valde trinervatae nervis lateralibus ad marginem subparallelibus ca. 2/3 laminarum attingentibus. Inflorescentiae laxe cymosae, pedicellis plerumque 1–5 cm. longis dense antrorse albo-strigosis. Capitula late campanulata ca. 1 cm. alta et lata; squamae involucri biseriatae, bracteae exteriores 5 herbaceae ovatae vel ellipticae ca. 10 mm. longae et 4 mm. latae apice acutae extus scabridae intus superne pilosulae, bracteae interiores 8 scariosae oblongae ca. 6 mm. longae et 2.0–2.5 mm. latae apice obtusae vel rotundatae extus et intus glabrae; paleae oblongo-lanceolatae ca. 6 mm. longae base in plexo connatae inferne in carina fissae margine superne pauce dentatae apice acutae extus glabrae. Flores radiorum 8; corollae flavae fertiles, tubis ca. 2.5 mm. longis glabris, limbis oblongo-ellipticis ca. 16 mm. longis et 6 mm. latis apice obscure tridentatis supra mamillosis subtus scabridis; achaenia radiorum in corpis ca. 3 mm. longa et

1.5 mm. lata late complanata subtiliter tricarinata in marginis lateralibus late alata extus et intus glabra in parietibus carbonacea punctata non striata; pappus bi-tri-aristatus in marginis exterioribus nullus in marginis interioribus in alis laciniatis ca. 1 mm. longis connatus, aristis 2.0–2.5 mm. longis, aristis lateralibus late alatis; flores discorum ca. 20 hermaphroditi; corollae flavae 7–8 mm. longae, tubis ca. 3 mm. longis glabris, faucis anguste infundibularibus 3.5–4.0 mm. longis glabris in nervis pauce fibrosis, lobis 5 triangularibus ca. 1 mm. longis et 0.5–0.6 mm. latis extus dense scabridis pauce minute glanduliferis intus ad marginem et superiore leniter papillosis, nervis lo-borum ad marginem parallelis; filamenta glabra in parte superiore ca. 0.3 mm. longa; thecae 2.5–2.7 mm. longae nigrescentes base acutae, cellulis endothecialibus quadratis in parietibus transversalibus 1–2-noduliferis; appendices antherarum nigrescentes ovatae ca. 0.5 mm. longae et 0.4 mm. latae extus glabrae; rami stylorum lineares apice attenuati, lineis stigmataceis duplicibus; achaenia discorum obprismatica quadrangularia ca. 3 mm. longa et 1 mm. lata base anguste cuneata glabra; pappus nullis. Grana pollinis ca. 27 μ in diametro.

Only the single species of *Lundellianthus* is known.

Guatemala: Peten: Lake Peten Itza, between San Jose and Chachaclun, bordering lake; flowers yellow; Jan. 22, 1971, *Elias Contreras 10365* (holotype, US; isotype, UTD). Peten: in *ramonal*, km. 53/54 of new Remate-Tikal road; flowers yellow-orange; Jan. 1968, *Contreras 8218* (paratypes, US, UTD).

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Plate 81.

Lundellianthus petenensis H. Robinson. A. Branch. × ½. B. Segment in involucre, inside view, × 3. C. Group of basally connate paleae, × 5. D. Ray corolla, × 5. E. Disk corolla, × 8½. F. Anther, × 8½. G. Ray achene, inside view, × 5. H. Disk achene, × 7.

B

C

E

F

H

G

A

D

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NOTES ON OYEDAEA IN CENTRAL AMERICA (HELIANTHEAE: ASTERACEAE)

Harold Robinson[1]

As generally delimited, *Oyedaea* contains Neotropical species in the *Zexmenia* relationship having sterile ray flowers. The achenes are slightly winged and are not constricted at the top. The concept has been useful though aphyletic. Even with the exclusion of *Dimerostemma* Cass with its more quadrangular achenes (Blake, 1917), *Oyedaea* remains a rather unnatural group. The genus has been monographed by Blake (1921) and a few more recent additions have been covered in the treatment of the Venezuelan Compositae by Aristeguieta (1964). The type species, *O. verbesinoides* DC. of Costa Rica and areas eastward to Venezuela, seems to represent the northermost of a related group of Andean species some of which extend south through Bolivia. There are some species in South America that are not in the relationship, but it is to the north in Central America that the unnatural nature of *Oyedaea* becomes most obvious.

A review of the Mexican and Central American species has been undertaken as a result of the effort to identify Guatemalan material sent by Dr. C. L. Lundell, Director, Plant Sciences Laboratory and Professor Emeritus at the University of Texas at Dallas. Included were specimens of two species keying to the genus *Oyedaea*, one previously known from only the type collection, and the second undescribed. In the process of the study it has been concluded that none of the species north of Costa Rica are true *Oyedaea*, but alternatives to the artificial concept are provided for only the two Mexican species. The two Guatemalan species are retained in *Oyedaea* awaiting more natural limits for the entire complex of genera.

In a previous publication (Robinson, 1978), the distinctive *Oyedaea ovalifolia* A. Gray of central Mexico is recognized as distinct genus, *Perymeniopsis*. The species shows little obvious relationship to the type species of *Oyedaea*, but seems more closely related to *Perymenium*. The *Perymeniopsis* pappus is unique in form with clusters of deciduous setae separated by a series of squamellae borne at a different level. The Mexican species is also distinct from other related genera by the corolla lobes with numberous stomates. In the possibly related *Perymenium* only fertile rays are known.

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A recently described species, *O. mexicana* Rzedowski, from Guerrero, presents a problem of a different kind. The species has rays reduced and sterile as described by Rzedowski (1973), but in all other respects the plant is an *Otopappus*. The species is scandent with strongly trinervate leaves. The inflorescence is thyrsoid in design with sharply spreading opposite branches, but it is mostly from the axils of normal leaves. Such an inflorescence is seen in many members of *Otopappus*. The involucral bracts are subimbricate with the basal bracts differentiated with blunt narrow herbaceous tips. The paleae have narrow sharp points. The achenes bear large unequal wings connected by squamellae on the sides. The sterile ray achenes also have wings and seem to undergo some enlargement in spite of the lack of a style in the flowers.

The natural concept of *Otopappus* has been extended by McVaugh (1972) to include *Notoptera* which lacks squamellae in the pappus. It is extended again here to include material with sterile ray flowers. The Rzedowski species seems distinct from any previously recognized in *Otopappus* and the following new combination is provided.

Otopappus mexicanus (Rzedowski) H. Robinson, comb. nov. *Oyedaea mexicana* Rzedowski, Ciencia, Méx. 28 (2) : 55. 1973.

Oyedaea verbesinoides DC. is the type species of the genus, and it is the only one in Central America with dense hirtellous to subtomentose pubescence, and with leaf blades decurrent on the petioles. The leaves are strongly trinervate from near the base of the blade. The heads are in terminal cymose panicles, the involucral bracts are all acute, there are usually 14–16 rays per head, the corollas are yellow, the veins of the throat are without an evident fiber-sheath, and anther appendages are black with a few sharp-pointed small hairs on the outer surface. The disk achenes are marginally winged with a pair of persistent awns and an apical fringe of squamellae.

The species reaches its northern limit in the area of Costa Rica and it is the northernmost of the tropical element of the genus.

Oyedaea Steyermarkii Blake, Proc. Biol. Soc. Wash. 60: 42. 1947, is the only species in the study with appressed strigillose pubescence and with the leaves often showing a lustrous sheen. The leaves are often pinnately veined but some leaves are weakly trinervate from near the basal fourth of the blade. The heads are on small mostly axillary branches. The heads are narrow compared to other members of the genus, and the involucral bracts are pointed without differentiated tips. There are only about 8 rays, the corollas are whitish, the disk corollas have strong fibrous sheathes on the veins of the throat, the lobes have particularly long and dense pubescence, and the anther appendages are black and glabrous. The disk achenes are slightly winged on the upper margin and there are a pair of persistent awns and an apical fringe of squamellae.

The species has been known from only the type collections from Alta Verapaz in Guatemala. Material received from Dr. Lundell included 5 additional collections of the species.

Guatemala: Peten: La Cumbre, W of km. 139 of Cadenas Road, on top of rocky hill, Sept. 23, 1966, *Elias Contreras 6207;* E of km. 139, March 2. 1967, *Contreras 6635;* Seamay, March 11, 1967, *Contreras 6717;*

Poptun, in pineland, km. 99 of road, March 28, 1967, *Contreras 6843;* La Cumbre, south of Rio Pusila road about 2.3 km., in *zapotal* on top of hill, March 21, 1977, *C. L. Lundell & Elias Contreras 20628* (all US, UTD).

Oyedaea Lundellii H. Robinson, sp. nov. Plate 82.

Plantae suffrutescentes 1–2 m. altae? Cuales fulvescentes teretes dense antrorse scabri et scabridi. Folia opposita, petiolis 7–20 mm. longis; laminae ellipticae plerumque 6–14 cm. longae et 2.5–4.5 cm. latae base acutae margine remote serrulatae apice obtusae vel breviter acutae supra et subtus sparse scabridae, nervis secundariis pinnatis. Inflorescentiae perdiffusa paucicapitatae, bracteis subrotundatis obtusis ca. 2 cm. longis et 1.2 cm. latis, pedicellis 1.2–2.5 cm. longis dense scabris et scabridis. Capitula late campanulata 1.2–1.5 cm. alta et ca. 1.5 cm. lata sine floribus radii; squamae involucri ca. 15 obovatae 8–10 mm. longae et 3–7 mm. latae exteriores herbaceae base valde gibbosae apice obtusae extus dense scabrae medianae subscariosae acutae ad marginem dense fimbriatae extus subglabrae interiores distaliter scariosae rotundatae ad marginem dense fimbriatae extus subglabrae; paleae scariosae lineares ca. 7 mm. longae et inferne 1 mm. latae apice oblonge appendiculatae apice anguste rotundatae. Flores radii ca. 10; corollae flavae, tubis ca. 2 mm. longis glabris, limbis ca. 15 mm. longis et 4.5 mm. latis apice subtrifidis extus persparse puberulis; flores disci ca. 30–40?; corollae pallide flavae 6 mm. longae, tubis 2 mm. longis glabris, faucis anguste infundibularibus ca. 3 mm. longis base vix constrictis glabris in nervis leniter fibrosis, lobis ca. 0.8 mm. longis et 0.7 mm. latis intus ad marginem sensim papillosis extus minute scabridis et pauce puberulis; filamenta in parte superiore ca. 0.35 mm. longa; thecae 2.5 mm. longae; appendices antherarum flavae ovatae ca. 4.3 mm. longae et 2.8 mm. latae extus dense glanduliferae. Achaenia 4.0–4.5 mm. longa biaristata superne anguste breviter alata, aristis usque ad 3 mm. longis, squamellis numerosis ad 0.6 mm. longis. Grana pollinis ca. 30 μ in diametro.

Guatemala: Peten: La Cumbre, about 3 km. east of "Cerro La Cueva", in *zapotal* on top of hill, herb, flowers yellow, March 22, 1977, *C. L. Lundell & Elias Contreras 20642* (holotype, US; isotypes, UTD).

The species is the only one in the study with mixed scabrid and scabridulous pebescence on the stems and pedicels. The strictly pinnate venation of the leaves and the rounded tips of the inner involucral bracts are also distinctive.

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NEW SPECIES OF CLIBADIUM, HETEROSPERMA AND MILLERIA FROM PERU (HELIANTHEAE: ASTERACEAE)

Harold Robinson[1]

Recent efforts to determine Peruvian Asteraceae have resulted in the discovery of various undescribed species of Heliantheae including one in each of the genera, *Clibadium*, *Heterosperma* and *Milleria*. The *Milleria* is of particular interest as the second species known for the genus and the first record for the genus from Peru.

Clibadium Vargasianum H. Robinson, sp. nov. Plate 83.

Plantae suffrutescentes vel frutescentes subscandentes? Cuales fulvescentes teretes distincte striati dense hirsuti, internodis plerumque 9–14 cm. longis. Folia opposita, petiolis 1.0–4.5 cm. longis; laminae ovatae 6–13 cm. longae et 2.5–7.0 cm. latae base breviter acuminatae margine serrulatae vel serratae apice anguste acuminatae utrinque longe suberecte pilosae subtus pallidiores fere ad basem trinervatae. Inflorescentiae terminales cymosae in ramis scorpioideae, ramis dense hirtellis vel hirsutis, bracteis linearibus 3–5 mm. longis pilosis. Capitula sessilia 5–6 mm. alta ca. 4 mm. lata; bracteae involucri exteriores ca. 10 late ovatae vel obovatae 4–5 mm. longae 2–4 mm. latae chartaceae pallidae in apicem minute virides margine dense erecte setuliferae apice breviter acutae extus superne dense strigulosae, bracteae interiores ca. 5 lineari-ellipticae ca. 3.5 mm. longae et 0.5 mm. latae; paleae disci nullae. Flores radii 5; corollae anguste infundibulares 4-lobatae 2.5–2.7 mm. longae, lobis 0.3–0.4 mm. longis, rami stylorum 0.15–0.20 mm. lati. Flores disci ca. 15; corollae infundibulares 3.5 mm. longae, tubis 1 mm. longis, canalis resiniferis rubris in faucis 5, lobis 5 ca. 0.6 mm. longis et 0.4–0.5 mm. latis extus dense setiferis, setis saepe incrassatis in cellulis apicalibus brevioribus constrictis; filamenta in parte superiore 0.5 mm. longa; thecae 1.4 mm longae; appendices antherarum nigrescentes ovatae ca. 0.3 mm. longae extus glanduliferis. Achaenia radii immatura superne setifera; achaenia disci minute cylindrica ca. 1 mm. longa superne dense hirsuta. Grana pollinis 23–25 μ in diametro valde spinosa.

Peru: Madre de Dios: Prov. Manu: Carbón Salvacion, habitat monte, alt 670 m., 24 Nov. 1965, *Vargas 16928* (holotype, US). Peru: Madre de Dios: Manu: Piñipiñi, Defense, borde rio, alt. 580 m., 29–31 Mayo 1957, *Vargas 11615* (paratype, US).

The structure of the heads indicates that *C. Vargasianum* is closely related to *C. surinamense* L., but the vegetative structure differs. The new species lacks the close erect hispid pubescense that is characteristic of the Linnaean species, and it has hairs on the stems and leaves longer than those in any other *Clibadium* seen in this study. The habit also seems to differ, the two fragments available having long internodes with inflorescences from every node.

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Heterosperma Ferreyrii H. Robinson, sp. nov. Plate 84.

Plantae annuae ca. 10–25 cm. altae base ramosae. Caules flavescentes hexagonales sparse hirsuti. Folia opposita, petiolis usque ad 2.5 cm. longis; laminae tripartitae vel bipinnatifidae 1.5–4.0 cm. longae et latae supra et subtus sparse distincte pilosae, lobis plerumque anguste ellipticis breviter acutis. Inflorescentiae scaposae unicapitatae cymose dispositae, pedunculis subhexagonalibus sparse hirsutis 2–7 cm. longis. Capitula 8–10 mm. alta et lata; bracteae involucri exteriores 5–6 obovatae herbaceae virides ca. 7 mm. longae et 3 mm. latae extus hirsutae apice breviter acutae, interiores 10–12 oblongae rubrescentes ca. 6 mm. longae et 2.5 mm. latae margine scariosae apice rotundate appendiculatae extus superne hirsutae; paleae oblongae scariosae aliquantum deciduae ca. 6 mm. longae et 2 mm. latae. Flores radii ca. 6; corollae flavae, tubis ca. 2 mm. longis, limbis late oblongis 3.5–4.0 longis et 2–3 mm. latis apice breviter trilobatae extus sparse puberulae. Flores disci ca. 15; corollae flavae ca. 3 mm. longae, tubis 1.2–1.4 mm. longis, lobis triangularibus ca. 0.5 mm. longis et latis extus puberulous, filamenta in parte superiore 0.2 mm. longa; thecae nigrescentes 0.9 mm. longae; appendices antherarum ovatae ca. 0.3 mm. longae et 0.2 mm. latae ad medio rubro-resiniferae. Achaenia obcompressa, exteriores late elliptica ca. 5 mm. longa et 4 mm. lata margine late alata glabra intus in costis setulifera, interiores elliptica vel anguste obovata margine late vel anguste alata superne pauce vel dense setifera apice breviter vel longe rostrata; pappus subnullus in achaeniis longo-rostratis coroniformis laceratus usque ad 0.5 mm. longus in aristis binis raro 1.5 mm. longus. Grana pollinis 25–27 μ in diametro breviter spiculifera.

Peru: Moquegua: Lomas de Mosta . . . (illeg.), habitat arenosa, alt. 50–300 m., 11–13 Nov. 1949, *Vargas 8568* (holotype, US). Peru: Moquegua: Prov. Mariscal Nieto: Lomas de Ilo, habitat arcilloso-arenosa, ladera, alt. 600–700 m., flores amarillas, Oct. 6, 1957, *Ferreyra 12575* (paratype, US).

Heterosperma Ferreyrii seems to represent an isolated species in southern coastal Peru, distinguished most readily from others of the genus by the near lack of pappus on the achenes.

Milleria peruviana H. Robinson, sp. nov. Plate 85.

Plantae suffruticosae ca. 0.5 m. altae. Caules flavo-virides subteretes leniter striati parce puberuli. Folia opposita subsessilia, petiolis 2–3 mm. longis; laminae ovatae plerumque 7–14 cm. longae et 2.5–7.5 cm. latae base late rotundatae margine remote minute spiculiferae apice breviter anguste acuminatae supra sparse scabridulae subtus sparse minute glandulo-punctatae plerumque in nervulis sparse scabridulae fere ad basem trinervatae. Inflorescentiae terminales cymosae, ramis racemiformibus, pedicellis ca. 5 mm. longis minute stipitato-glanduliferis. Capitula juvenalia ca. 4 mm. alta subsymmetrica sensim aymmetrica obovata ca. 7 mm. longa et 3–4 mm. lata in bracteis involucris involutis deformibus induratis investientia; bracteae involucri 3 valde inaequales exteriores herbaceae interiores membranaceae translucentes ca. 3 mm. longae; paleae minutae membranaceae. Flos femineus 1; corolla flava ca. 4.5 mm.

longa, tubo ca. 0.7 mm. longo, limbo sparse puberulo et glandulo-punctato valde trilobato. Flores disci masculi 4; corollae plerumque virides ca. 2.5–3.0 mm. longae superne sparse glandulo-punctatae, tubis ca. 0.5 mm. longis, lobis ca. 0.5 mm. longis et latis; filamenta in parte superiore 0.2 mm. longa; thecae nigrescentes ca. 1 mm. longae; appendices antherarum nigrescentes breviter triangularibus ca. 0.1 mm. longae et 0.2 mm. latae extus uniglanduliferae. Achaenia fertilia ca. 5 mm. longa et 3 mm. lata nigrescentia striata; pappus nullus. Grana pollinis ca. 32 μ in diametro valde spinosa.

Peru: Lambayeque: El Molino, a 20 km. del cruce entre Olmos y Abra de Porculla, habitat monte bajo, alt. 700–800 m., flores amarillas, sufruticosa, Abril 20, 1953, *Ferreyra 9140* (holotype, US).

Milleria peruviana is a second species in a genus that has long been considered monotypic. The relationship between the species is close with little evident difference in the inflorescence. The subsessile basally rounded blades of the leaves, however, furnish a clear and immediate distinction. The new species also is the first record for the genus in Peru. *Milleria quinueflora* L. is known from Mexico, Central America, and northern South America south to northern Ecuador.

Holotype of *Oyedaea Lundellii* H. Robinson, sp. nov., *C. L. Lundell & Elias Contreras 20642* (US), with enlargement of head. Photos by Victor E. Krantz, Staff Photographer, National Museum of Natural History.

Holotype of *Clibadium Vargasianum* H. Robinson, sp. nov., *Vargas 16928* (US).

Holotype of *Heterosperma Ferreyrii* H. Robinson, sp. nov., *Vargas 8568* (US).

PLANTAS DEL PERU
Depto. LAMBAYEQUE Prov. Lambayeque
Localidad: Al Molino, a ... km. del cruce entre Olmos y Abra de Porculla
Flores: amarillas : subfruticosa
Habitat ... monte bajo
Fecha: Abril 20, 1953 altitud 700-... m.
N. v: Det.
Colector: Ramón Ferreyra 9140
UNITED STATES
2582120 A
NATIONAL HERBARIUM

Holotype of *Milleria peruviana* H. Robinson, sp. nov., *Ferreyra 9140* (US).

STUDIES OF AMERICAN PLANTS – XVIII

Cyrus Longworth Lundell[1]

Photographs of types, and other specimens of importance to an understanding of the species, represent taxa in the Cruciferae, Leguminosae, Rutaceae, Euphorbiaceae, Guttiferae, Sapotaceae, Asclepiadaceae and Rubiaceae. A new very unique species in the Myrtaceae, evidently a *Eugenia,* is described from Guatemala.

CRUCIFERAE

Lesquerella gracilis (Hook.) S. Wats. var. **pilosa** Lundell, Wrightia 5: 331. 1977. Plate 86.

Texas: Collin County, Coit Meadow on Renner Road, relict blackland prairie, April 6, 1973, *C. L. Lundell 18744* (LL, holotype; UTD, isotype), annual, corolla bright yellow.

LEGUMINOSAE

Astragalus Soxmaniorum Lundell, Field & Lab. 13: 3. 1945. Plate 87.

Texas: Van Zandt Co., near Edom, off highway 64, in fallow field, March 25, 1944, *C. L. Lundell & Amelia A. Lundell 12701* (LL, isotype), spreading annual, calyx pale green, corolla tinted green, almost white.

Bauhinia petenensis Lundell, Wrightia 5: 344. 1977. Plate 88.

Guatemala: Dept. Peten, Dos Lagunas, in *zapotal* 1 km. north of village, Dec. 30, 1976, *C. L. Lundell & Elias Contreras 20475* (LL, holotype), shrub, 15 ft. high, 3 in. diam., corolla pink, "*pata de vaca.*"

Galactia anomala Lundell, Contr. Univ. Mich. Herb. 6: 26. 1941. Plate 89.

British Honduras: El Cayo District, Mountain Pine Ridge, San Agustin, in sandy pine uplands, Aug. 11, 1936, *C. L. Lundell 6901* (LL, isotype), herbaceous vine, climbing on grasses, flowers purplish.

RUTACEAE

Zanthoxylum petenense Lundell, Wrightia 5: 317. 1976. Plate 90.

Guatemala: Dept. Peten, La Cumbre, in *zapotal* on top of hill, on Pusila Road, about 5 km. north, Aug. 19, 1976, *C. L. Lundell & Elias Contreras 20221* (LL, holotype), tree, 50 ft. tall, 12 in. diam., fruits green; La Cumbre, in *zapotal* on top of hill, 3 km. east, Aug. 28, 1976, *Lundell & Contreras 20267* (LL), tree, 50 ft. high, 8 in. diam., fruits green.

EUPHORBIACEAE

Acalypha oblancifolia Lundell, Wrightia 5: 243. 1976. Plate 91.

Guatemala: Dept. Izabal, El Estor, in high forest bordering Lake Izabal, March 7, 1972, *Elias Contreras 11192* (LL, holotype), fruit green.

Acalypha tamaulipasensis Lundell, Wrightia 5: 244. 1976. Plate 92.

Mexico: Tamaulipas, Municipio de Gomez Farias, Sierra de Guatemala, 1000 m. east of road between San Pablo and the Red Gate along a trail

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leading into the lower region of mountain, in humid oak-sweetgum and semi-tropical evergreen transition zone, limestone topography, Sept. 4, 1970, *J. R. Sullivan 770* (TEX, holotype).

Bernardia albida Lundell, Wrightia, 5: 245. 1976. Plate 93.
Mexico: San Luis Potosi, 20 km. east of San Francisco on San Luis Potosi – Rioverde Highway, on dark limestone, alt. 1600 m., July 1, 1972, *F. Chiang, T. Wendt & M. C. Johnston 8183* (LL, holotype), shrub, to 3 m.

Bernardia chiapensis Lundell, Wrightia 5: 246. 1976. Plate 94.
Mexico: Chiapas, Boqueron, near Motozintla, alt. 2540 m., May 4, 1945, *Eizi Matuda 5390* (LL, holotype), shrub 3–4 m. high.

Bernardia mayana Lundell, Wrightia 5: 247. 1976. Plate 95.
Guatemala: Dept. Peten, Dos Lagunas, Ixcanrio, Bajo Ixcanrio, in *tintal* 2 km. west, May 16, 1969, *Elias Contreras 8575* (LL, holotype), shrub, 12 ft. high, 2 in. diam.

Bernardia mollis Lundell var. **lanceifolia** Lundell, Contr. Univ. Mich. Herb. 4: 13. 1940. Plate 96.
Mexico: Chiapas, Volcan de Tacana, north side in second growth, alt. 2100 m., April 2, 1939, *Eizi Matuda 2978* (MICH, holotype; LL, isotype), frutex, 2 m. altus, 3–4 cm. diam.

Bernardia ovalifolia Lundell, Wrightia 5: 247. 1976. Plate 97.
Mexico: Durango, Corral de Piedra, alt. 4000 ft., April 10, 1943, *C. L. Lundell 13002* (LL, holotype), shrub, 6 ft. high.

Sapium nitidum (Monachino) Lundell, Am. Midl. Nat. 29: 477. 1943. *Sapium biglandulosum* Muell. Arg. var. *nitidum* Monachino, Bull. Torrey Bot. Club 67: 771. 1940. *Sapium mammosum* Lundell, Wrightia 5: 77. 1975. Plate 98.
British Honduras: El Cayo District, on deep river alluvium, Santa Rosa pasture, 2 miles from El Cayo, elev. 65 m., 1940, *J. B. Kinlock 340* (NY, holotype, isotype); north of the Belize River at Baking Pot, alt. ca. 250 ft., wooded alluvial banks, May 1, 1969, *George R. Proctor 30211* (LL, holotype of *S. mammosum*), small tree with white latex.

GUTTIFERAE

Clusia verapazensis Lundell, Wrightia 5: 348. 1977. Plate 99.
Guatemala: Dept. Baja Verapaz, Niño Perdido, on Cerro Verde in forest on hillside, east of km. 150 of Coban Road, Dec. 3, 1976, *C. L. Lundell & Elias Contreras 20432* (LL, holotype), tree 35 ft. tall, 10 in. diam., with yellow latex, "*chaparro.*"

MYRTACEAE

Eugenia brihondurensis Lundell, sp. nov. – Arbor, ramulis minute adpresse rufo-pubescentibus; folia petiolis 4–7 mm. longis stipitata; lamina chartacea, lanceolato-elliptica, ad 7.5 cm. longa, 3 cm. lata, apice abrupte caudato-acuminata, acumine obtuso, basi acuta, glabra, nervo medio supra versus basin canaliculato; inflorescentia anguste racemoso-

paniculata, ad 5 cm. longa, pedunculata, minute adpresse rufo-pubescentia; pedicelli fructiferi usque ad 2 mm. longi; fructus subglobosus, ad 1.5 cm. diam.

Guatemala: Dept. Peten, La Cumbre, in *zapotal* on top of hill, south of km. 141 of the Cadenas Road, Sept. 12, 1976, *C. L. Lundell & Elias Contreras 20346* (LL, holotype; UTD, isotype), tree, 60 ft. high, 14 in. diam., fruits reddish-black.

In *Eugenia brihondurensis* the branchlets are terete. The *Calyptranthes*-like collar crowning immature fruits is shallow, 0.5 mm. or less in height, about 2.5 mm. in diameter. In the mature fruits, the collar is reduced to a shallow ring 3–6 mm. in diameter, a peculiar feature.

This unique species with dehiscence of the calyx as in *Calyptranthes*, with inflorescence of branched racemes sometimes forming a terminal panicle, has seed of the *Eugenia* type. That it could be a native species of *Syzygium*, the companion genus of *Eugenia* in Asia or Oceania, is a possibility. There are other Asiatic genera, such as *Microtropis* Wallich (Celastraceae), represented in Central America and tropical Mexico.

Dr. Rogers McVaugh has examined the material, and suggests that the species might be an introduced *Syzygium*. Since the type was collected in rain forest of the rugged extension into southeastern Peten of the Maya Mountains of British Honduras, its introduction there seems unlikely.

SAPOTACEAE

Bumelia conglobata Standl., Trop. Woods 31: 40. 1932. Plate 100.

Guatemala: Dept. Baja Verapaz, Salama, alt. 825 m., March 2, 1907, *W. A. Kellerman 6588* (F, holotype).

Cronquist has referred this taxon to synonymy under *B. obtusifolia* Roem. & Schult. subsp. *buxifolia* (Roem. & Schult.) Cronquist, Journ. Arn. Arb. 26: 457. 1945. A study of the South American types is needed to determine the status of *B. conglobata* as well as *B. mayana* Standl.

Bumelia Contrerasii Lundell, Wrightia 5: 89. 1975. *Dipholis Contrerasii* (Lundell) Lundell, Wrightia 5: 149. 1975. Plates 101, 102.

Guatemala: Dept. Izabal, on the Peten-Guatemala Road, in high forest, *corozal*, between Seja and Cienaga, May 4, 1971, *Elias Contreras 10722* (LL, holotype), tree, 80 ft. high, 18 in. diam., flowers greenish-white; same locality and date, *Contreras 10721* (LL), *Contreras 10723* (LL); Cadenas, Toquela River Road, 5 km. from the village, in high forest, *corozal-zapotal* forest, Sept. 5, 1969, *Contreras 9065* (LL), tree, 70 ft. high, 18 in. diam.; Cadenas, in *corozal*, high forest, Sept. 1969. *Contreras 9148* (LL), tree, 60 ft. tall, 24 in. diam., fruits warty. Dept. Peten, La Cumbre, km. 138/139 of Cadenas Road, in high forest, July 27, 1969, *Contreras 8872* (LL), tree, 60 ft. tall, 18 in. diam.; La Cumbre, on Cadenas Road, km. 142, in high forest, *zapotal-corozal*, Sept. 1, 1969, *Contreras 9035* (LL), tree, 50 ft. tall, 15 in. diam., La Cumbre, in *zapotal*, Sapurul, SSW, April 9, 1977, *C. L. Lundell & Elias Contreras 20756* (LL), tree, 75 ft. high, 15 in. diam., flowers greenish, "*quej*," "*tempiste*"; same locality and date, *Lundell & Contreras 20757* (LL); La Cumbre, in *zapotal* on hillside, Sapurul, SWW, April 13, 1977, *Lundell & Contreras 20793* (LL), tree, 80 ft. high, 20 in. diam., flowers greenish, "*quej*," "*cquej*"; same locality, *Lundell & Contreras 20798* (LL), tree, 120 ft. high, 35 in. diam., flowers greenish.

Bumelia durifolia (Standl.) Stearn, Journ. Arn. Arb. 49: 287. 1968. *Dipholis durifolia* Standl., Carnegie Inst. Wash. Publ. 461: 78. 1935. Plate 103.

British Honduras: Toledo District, Jacinto Hills, on bare hilltop, alt. 700 ft., Sept. 8, 1933, *W. A. Schipp 1202* (F, holotype; MICH, isotype), tree, 20 ft. high, 5 in. diam., flowers creamy white. The species is known only from the type collection.

Bumelia eucoriacea (Lundell) Lundell, Wrightia 6: 18. 1978. *Mastichodendron eucoriaceum* Lundell, Wrightia 5: 178. 1975. Plates 104, 105.

Guatemala: Dept. Baja Verapaz, Union Barrios, clearing west of km. 153/154, 1 km. from the village, Aug. 28, 1975, *C. L. Lundell & Elias Contreras 19740* (LL, holotype), tree, 50 ft. high, 8 in. diam.; Niño Perdido, bordering Rio San Jose, 8 km. north, in high forest, May 28, 1977, *Lundell & Contreras 21011* (LL), tree, 80 ft. high, 30 in. diam., fruit blackish, "*zapotillo de montaña.*"

Bumelia leiogyna Donn. Sm., Bot. Gaz. 18: 4. 1893. Plate 106.

Guatemala: Dept. Sacatepequez, Capetillo, alt. 4300 ft., March, 1892, *Donnell Smith 1451* (US, holotype).

Bumelia lenticellata (Lundell) Lundell, Wrightia 5: 350. 1977. *Dipholis lenticellata* Lundell, Wrightia 5: 319. 1976. Plate 107.

Guatemala: Dept. Alta Verapaz, Chahal, on top of hill, on El Mago-Sebol Road, in low forest, Oct. 15, 1968, *Elias Contreras 7940* (LL, holotype), tree, 35. ft. high, 10 in. diam., "*avalo.*"

This rain forest tree with oblanceolate or obovate leaves and oblong-ellipsoid fruits is represented in the Lundell Herbarium by a series of collections from Peten, Izabal and Alta Verapaz.

Bumelia mayana Standl., Trop. Woods 31: 41. 1932. Plate 108.

Guatemala: Dept. Peten, Tikal, April 12–15, 1931, *H. H. Bartlett 12593* (LL, isotype), small tree.

In the Lundell Herbaria, the species is represented by numerous collections from the Yucatan Peninsula.

Bumelia neglecta (Cronquist) Lundell, Wrightia 5: 90. 1975. *Bumelia retusa* Swartz, subsp. *neglecta* Cronquist, Journ. Arn. Arb. 26: 461. 1945. *Bumelia americana* (Miller) Stearn, subsp. *neglecta* (Cronquist) Stearn, Journ. Arn. Arb. 40: 284. 1968. Plate 109.

British Honduras: Stann Creek District, All Pines, growing edge of mangroves, in open places, alt. 5 ft., Aug. 20, 1930, *W. A. Schipp 585* (MICH, isotype), medium sized shrub, flowers white. Mexico: Yucatan, Progreso, in scrub on low sand dunes, June 2, 1938, *C. L. Lundell & Amelia A. Lundell 7392* (LL, flowers & fruits), spinescent shrub, 3–6 ft. high. ripe fruits globose, black.

Bumelia pleistochasia Donn. Sm., Bot. Gaz. 18: 4. 1893. Plate 110.

Guatemala: Dept. Sacatepequez, San Lucas, alt. 5500 ft., April 1890, *Donnell Smith 2184* (US, holotype).

Calocarpum huastecanum Gilly, Bull. Torrey Bot. Club 71: 659. 1944 Plate 111.

Mexico: San Luis Potosi, Mun. Tamazunchale, km. 387 on Laredo Highway north of town of Tamazunchale, July 14, 1943, *C. L. Gilly, Sr. & H. W. Rickett 12* (LL, isotype), tree, 75 ft. tall, 2 ft. diam.; in forest km. 387 of highway, Finca Los Mangos near Tamazunchale, July 15, 1943, *C. L. Lundell 12253* (LL, from same tree as type).

Bumelia laurifolia Standl., Trop. Woods 31: 45. 1932, non *Pouteria laurifolia* Radlk, 1882. Plate 112.

British Honduras: Orange Walk, Honey Camp, Sept. 1928, *C. L. Lundell LP14* (F, holotype; LL, isotype), tree, "*silly-young.*"

This species has been placed heretofore in the synonymy of *Pouteria amygdalina* (Standl.) Baehni, one of six *nomina dubia* of this family in the Maya area (Wrightia 5: 255. 1976).

The complex in the Yucatan Peninsula includes *?Pouteria psilocarpa* Baehni, of which I have not seen the type, and *Pouteria binatosepala* Lundell (Plate 116).

Since the species appear to be deoecious, their exclusion from *Pouteria* is indicated. When the generic position of the taxa is determined, the oldest acceptable name is *Bumelia laurifolia* Standl.

Mastichodendron belizense (Lundell) Cronquist, Lloydia 9: 250. 1946. *Sideroxylon belizense* Lundell, Contr. Univ. Mich. Herb. 6: 55. 1941. Plate 113.

British Honduras: Toledo District, Camp 32, B. H. — Guatemala boundary survey, alt. 2100 ft., March 15, 1934, *W. A. Schipp 1269* (MICH, holotype), a large tree with rather dense compact crown, quite a common species inland in hill forest growth, flowers white, fruit at first green, turning yellow when mature.

Mastichodendron erythrocarpum Lundell, Wrightia 5: 196. 1975. Plate 114.

Guatemala: Dept. Izabal, Cadenas (Puerto Mendez), in low forest, top of rocky hill, bordering village on west, June 8, 1970, *Elias Contreras 9983* (LL, holotype), tree, 60 ft. high, 15 in. diam., fruit dark red.

Mastichodendron tikalense Lundell, Wrightia 5: 197. 1975. Plate 115.

Guatemala: Dept. Peten, Tikal National Park, in *zapotal*, on trail to *pinal*, March 4, 1961, *C. L. Lundell 16880* (LL, holotype), tree, 96 ft. tall, 36 in. diam., fruit green, "*tempixte.*"

Pouteria binatosepala Lundell, Wrightia 5: 94. 1975. Plate 116.

Guatemala: Dept. Peten, Dos Lagunas, on Arroyo Seca, 1 km. south of El Cedro, in high forest, *zapotal*, May 3, 1969, *Elias Contreras 8456* (LL, holotype), tree, 70 ft. high, 18 in. diam., flowers greenish-white, "*silion.*"

Pouteria dibrachiata Lundell Wrightia 5: 95. 1975. Plate 117.

Costa Rica: Heredia, Tirimbina, in tropical wet forest, elev. 700 ft., May 31, 1971, *George R. Proctor 32205* (LL, holotype), small tree, flowers cream, "*sapotilla.*"

Pouteria Gentlei Lundell, Wrightia 5: 99. 1975. Plate 118.

British Honduras: Toledo District, in high ridge, on hill slope near Pate's Camp, Edwards Road beyond Columbia, Feb. 20, 1951, *Percy H. Gentle 7208* (LL, holotype), large tree, small white flowers, "*mammy cederia,*" "*mammy cerilla.*"

Pouteria hypoglauca (Standl.) Baehni, Candollea 9: 250. 1942. *Lucuma hypoglauca* Standl., Trop. Woods 4: 4. 1925. Plate 119.
El Salvador: Guayabal, Jan. 1924, *Salvador Calderon 1935* (US, holotype).
The tree is apparently native in San Luis Potosi and southern Mexico. It is planted rather widely for its edible fruits.

Pouteria Meyeri (Standl.) Baehni, Candollea 9: 272. 1942. *Sideroxylon Meyeri* Standl., Trop. Woods 31: 45. 1932. Plate 120.
Mexico: Campeche, Tuxpeña, Feb. 17, 1932, *C. L. Lundell, 1345* (F, holotype; LL, MICH, isotypes), large frequent tree, "*sapotillo.*"
P. Meyeri has been considered a synonym of *P. unilocularis* (Donn. Sm.) Baehni by Cronquist and others. *P. unilocularis* was described from Costa Rica and is reported to extend into Panama. Another species, *P. hondurensis* (Pittier) Baehni, is recognized by Baehni (l.c.) as distinct from both *P. unilocularis* and *P. Meyeri.*
That we have several species with ovaries 1-loculate is obvious. *P. Meyeri* is the correct name for the species as represented in Guatemala and northward in the Yucatan Peninsula through Belize, Campeche and Quintana Roo. It is a common element of the *zapotal.*

Pouteria quicheana Cronquist, Lloydia 9: 263. 1946. Plate 121.
Guatemala: Dept. Quiche, mixed forest or along streams, 1942, *Jose Ignacio Aguilar 1331* (F, holotype).

Pouteria sebolensis Lundell, Wrightia 5: 321. 1976. Plate 122.
Guatemala: Dept. Alta Verapaz, along Rio Sebol, downstream from Carrizal, alt. 150–220 m., April 19, 1942, *Julian A. Steyermark 45789* (F, holotype; LL, isotype), tree 40 ft. tall, leaves rich green and shining above, pale green beneath, firmly membranous or subcoriaceous, flowers pale greenish.

ASCLEPIADACEAE

Cynanchum eulaxiflorum Lundell, Wrightia 5: 351. 1977. Plate 123.
Guatemala: Dept. Baja Verapaz, Union Barrios, in high forest on top of hill, east of km. 154, June 8, 1975, *C. L. Lundell & Elias Contreras 19401* (LL, holotype), vine, flowers whitish, aromatic.

Matelea mayana Lundell, Wrightia 5: 359. 1977. Plate 124.
Guatemala: Dept. Peten, La Cumbre, in *zapotal* on top of hill, 4 km. east on Rio Purula Road, Sept. 21, 1975, *C. L. Lundell & Elias Contreras 19904* (LL, holotype), vine, flowers brownish.

RUBIACEAE

Randia mayana Lundell, Wrightia 5: 322. 1976. Plates 125, 126.
Guatemala: Dept. Baja Verapaz, Niño Perdido, in high forest on top of hill, east of km. 150/151, Aug. 30, 1975, *C. L. Lundell & Elias Contreras 19758* (LL, holotype, isotype), small tree, 25 ft. high, 4 in. diam., flowers white, fragrant, fruit green.

Rondeletia falciformis Lundell, Wrightia 5: 324. 1976. Plate 127.
Mexico: Hidalgo, in *Liquidambar* forest, on mountainside, km. 332 of

Mexico City-Laredo Highway, above Chapulhuacan, alt. ca. 3800 ft., July 13, 1943, *C. L. Lundell 12234* (LL, holotype), tree, 3 in. diam., 12 ft. high, corolla white; in ravine on mountainside, km. 340 of highway, between Chapulhuacan and Tamazunchale, Aug. 20, 1943, *C. L. Lundell & Amelia A. Lundell 12420* (LL), slender shrub, corolla white.

Rondeletia subscandens Lundell, Wrightia 5: 328. 1976. Plate 128.
Guatemala: Dept. Peten, La Cumbre, in *zapotal* on top of hill, about 500 m. west of km. 142/143 of the Cadenas Road, Sept. 10, 1976, *C. L. Lundell & Elias Contreras 19830* (LL, holotype), woody vine, fruit green.

Rondeletia yucatanensis Lundell, Wrightia 5: 329. 1976. Plate 129.
Mexico: Yucatan, Chichen Itza, April 28, 1950, *J. T. Baldwin, Jr. 14230* (LL, holotype), to 8 ft. with rose flowers.

Sickingia multiflora Lundell, Wrightia 5: 258. 1976. Plate 130.
Guatemala: Dept. Peten, Tikal, on Temple IV, July 11, 1960, *Elias Contreras 1239* (LL, holotype), tree, 18 in. diam., 90 ft. high, "*chacahuante*"; Tikal, in *ramonal* covering the ruins, July 29, 1959, *Contreras 38* (LL), tree, 60 ft. high, 8 in. diam., flowers white.

Holotype of *Lesquerella gracilis* (Hook.) S. Wats. var. *pilosa* Lundell, *C. L. Lundell 18744* (LL). Wrightia 5: 331. 1977.

Isotype of *Astragalus Sormaniorum* Lundell, *C. L. Lundell & Amelia A. Lundell 12701* (LL), Field & Lab. 13: 3. 1945.

Holotype of *Bauhinia petenensis* Lundell, *C. L. Lundell & Elias Contreras 20475* (LL), **Wrightia 5: 344. 1977.**

PLANTS OF BRITISH HONDURAS
Galactia anomala
Type collection
Herbaceous vine, climbing on
grasses; fls purplish
EL CAYO DISTRICT Mountain Pine Ridge San Aguslin.
In sandy pine uplands
C. L. Lundell No 6901
July - Aug. 1936

Isotype of *Galactia anomala* Lundell, *C. L. Lundell 6901* (LL), Contr. Univ. Mich. Herb. 6: 26. 1941.

Holotype of *Zanthoxylum petense* Lundell, *C. L. Lundell & Elias Contreras 20221* (LL), Wrightia 5: 317. 1976.

Holotype of *Acalypha oblancifolia* Lundell, *Elias Contreras 11192* (LL), Wrightia 5: 243. 1976.

Holotype of *Acalypha tamaulipasensis* Lundell, *J. R. Sullivan 770* (TEX), Wrightia 5: 244. 1976.

Holotype of *Bernardia albida* Lundell, *F. Chiang, T. Wendt & M. C. Johnston 8183* (LL), Wrightia 5: 245. 1976.

Holotype of *Bernardia chiapensis* Lundell, *Eizi Matuda 5390* (LL), Wrightia 5: 246. 1976.

Holotype of *Bernardia mayana* Lundell, *Elias Contreras 8575* (LL), Wrightia 5: 247. 1976.

Isotype of *Bernardia mollis* Lundell var. *lanceifolia* Lundell, *Eizi Matuda 2978* (LL), Contr. Univ. Mich. Herb. 4: 13. 1940.

Holotype of *Bernardia ovalifolia* Lundell, *C. L. Lundell 13002* (LL), Wrightia 5: 247. 1976.

Holotype of *Sapium biglandulosum* Muell. Arg. var *nitidum* Monachino, *J. B. Kinlock 340* (NY), Bull. Torrey Bot. Club 67: 771. 1940. *Sapium nitidum* (Monachino) Lundell. *Sapium mammosum* Lundell.

Holotype of *Clusia verapazensis* Lundell. *C. L. Lundell & Elias Contreras 20432* (LL), Wrgihtia 5: 348. 1977.

Holotype of *Bumelia conglobata* Standl., *W. A. Kellerman 6588* (F), Trop. Woods 31: 40. 1932.

Holotype of *Bumelia Contrerasii* Lundell, *Elias Contreras 10722* (LL), Wrightia 5: 89. 1975. *Dipholis Contrerasii* (Lundell) Lundell.

Fruiting specimen of *Bumelia Contrerasii* Lundell, *Elias Contreras 9065* (LL, UTD), Wrightia 5: 89. 1975. *Dipholis Contrerasii* (Lundell) Lundell.

FLORA OF BRITISH HONDURAS
DIPHOLIS DURIFOLIA Standl., sp.
On hilltop this is the
only tree found growing along with Russelia, Agave
and Serjania. Flowers creamy white "Nare".
Jacinto
20ft.5ins.dia.
No. 1202 W. A. Schipp Sept 8th

Isotype of *Dipholis durifolia* Standl., *W. A. Schipp 1202* (MICH), Carnegie Inst. Wash. Publ. 461: 78. 1935. *Bumelia durifolia* (Standl.) Stearn.

Holotype of *Mastichodendron eucoriaceum* Lundell, *C. L. Lundell & Elias Contreras 19740* (LL), Wrightia 5: 178. 1975. *Bumelia eucoriacea* (Lundell) Lundell.

Fruiting specimen of *Bumelia eucoriacea* (Lundell) Lundell, *C. L. Lundell & Elias Contreras 21011* (LL, UTD), Wrightia 6: 18. 1978.

Holotype of *Bumelia leiogyna* Donn. Sm., *Donnell Smith 1451* (US), Bot. Gaz. 18: 4. 1893.

Holotype of *Dipholis lenticellata* Lundell, *Elias Contreras 7940* (LL), Wrightia 5: 319. 1976. *Bumelia lenticellata* (Lundell) Lundell.

Isotype of *Bumelia mayana* Standl., *H. H. Bartlett 12593* (LL), Trop. Woods 31: 41. 1932.

Isotype of *Bumelia retusa* Swartz, subsp. *neglecta* Cronquist, *W. A. Schipp 585* (MICH), Journ. Arn. Arb. 26: 461. 1945. *Bumelia americana* (Miller) Stearn, subsp. *neglecta* (Cronquist) Stearn. *Bumelia neglecta* (Cronquist) Lundell.

Holotype of *Bumelia pleistochasia* Donn. Sm., *Donnell Smith 2184* (US), Bot. Gaz. 18: 4. 1893.

Isotype of *Calocarpum huastecanum* Gilly, *C. L. Gilly, Sr. & H. W. Rickett 12* (LL), Bull. Torrey Bot. Club 71: 659. 1944.

Holotype of *Bumelia laurifolia* Standl., *C. L. Lundell LP14* (F), Trop. Woods 31: 45. 1932.

Holotype of *Sideroxylon belizense* Lundell, *W. A. Schipp 1269* (MICH), Contr. Univ. Mich. Herb. 6: 55. 1941. *Mastichodendron belizense* (Lundell) Cronquist.

Holotype of *Mastichodendron erythrocarpum* Lundell, *Elias Contreras 9983* (LL), Wrightia 5: 196. 1975.

Holotype of *Mastichodendron tikalense* Lundell, *C. L. Lundell 16880* (LL), Wrightia 5: 197. 1975.

Holotype of *Pouteria binatosepala* Lundell, *Elias Contreras 8456* (LL) Wrightia 5: 94. 1975.

Holotype of *Pouteria dibrachiata* Lundell, *George R. Proctor 32205* (LL), **Wrightia 5: 95. 1975.**

Holotype of *Pouteria Gentlei* Lundell, *Percy H. Gentle 7208* (LL), Wrightia 5: 99. 1975.

Holotype of *Lucuma hypoglauca* Standl., *Salvador Calderon 1935* (US), Trop. Woods 4: 4. 1925. *Pouteria hypoglauca* (Standl.) Baehni.

Holotype of *Sideroxylon Meyeri* Standl., *C. L. Lundell 1345* (F), Trop. Woods 31: 45. 1932. *Pouteria Meyeri* (Standl.) Baehni.

Holotype of *Pouteria quicheana* Cronquist, *Jose Ignacio Aguilar 1331* (F), **Lloydia 9: 263. 1946.**

PLANTS OF GUATEMALA
45789
Tree 40 ft. tall; leaves rich green and shining above, pale green beneath, firmly membranous or subcoriaceous; flowers pale greenish

Holotype of *Pouteria sebolensis* Lundell, *Julian A. Steyermark 45789* (F), Wrightia 5: 321. 1976.

Holotype of *Cynanchum eulaxiflorum* Lundell, *C. L. Lundell & Elias Contreras 19401* (LL), **Wrightia 5: 351. 1977.**

Holotype of *Matelea mayana* Lundell, *C. L. Lundell & Elias Contreras 19904* (LL), Wrightia 5: 359. 1977.

Holotype (flowering) of *Randia mayana* Lundell, *C. L. Lundell & Elias Contreras 19758* (LL), Wrightia 5: 322. 1976.

Isotype (fruiting) of *Randia mayana* Lundell, *C. L. Lundell & Elias Contreras 19758* (LL), Wrightia 5: 322. 1976.

Holotype of *Rondeletia falciformis* Lundell, *C. L. Lundell* 12234 (LL), **Wrightia 5: 324. 1976.**

Holotype of *Rondeletia subscandens* Lundell, *C. L. Lundell & Elias Contreras 19830* (LL), Wrightia 5: 328. 1976.

Holotype of *Rondeletia yucatanensis* Lundell, *J. T. Baldwin, Jr. 14230* (LL), Wrightia 5: 329. 1976.

Holotype of *Sickingia multiflora* Lundell, *Elias Contreras 1239* (LL), Wrightia 5: 258. 1976.

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ANNOUNCEMENT

AUSTIN, TEXAS: Income from a $240,000 Plano apartment complex given to The University of Texas at Dallas will be used to endow a professorship in botany, Dr. Bryce Jordan, UT-Dallas president, has announced.

Acceptance of the gift from Dr. and Mrs. C. L. Lundell of Dallas was approved Friday, December 1, 1978 by The University of Texas System Board of Regents meeting in Austin.

Dr. Lundell is Director of the UT-Dallas Plant Sciences Laboratory and is Professor Emeritus of Botany and Environmental Sciences. He is also Adjunct Professor of Botany at UT-Austin. Mrs. Lundell is a botanist who formerly was a staff member of the University of Michigan Herbarium.

The apartment complex, located in downtown Plano, will be retained by UT-Dallas for student and faculty housing, the income from which will be used to fund the C. L. Lundell Professorship of Botany (Vascular Plant Taxonomy).

Dr. Lundell founded Texas Research Foundation at Renner, and he was its director until the institution was dissolved in 1972. From the Foundation The University of Texas at Dallas received 278 acres of Renner land in 1972. This comprises the western half of the campus. Also, UT-Dallas received the science library of the Foundation which is the Lundell Collection of the Eugene McDermott Library on the UT-Dallas campus.

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WRIGHTIA

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A FOSSIL SPECIES OF MATUDAEA LUNDELL (HAMAMELIDACEAE) FROM THE MIDDLE OLIGOCENE OF CENTRAL EUROPE

Cyrus Longworth Lundell[1]

In the period 1965–1971 the Tertiary fossil flora in the Haselbach Clay of the open pit lignite mines south of Leipzig in Central Germany was explored. The Haselbach floral assemblage ranges into the Middle Oligocene. A total of 132 plant species are described from the formation, 19 of them new to science (Von Dr. Dieter H. Mai and Dr. Harold Walther, Abhandlungen des Staatlichen Museums für Minerologie und Geologie zu Dresden, Volume 28. 1978).

Among the fossil leaf specimens collected, a trinerved leaf referable to an unknown genus in the Hamamelidaceae was found by Dr. Walther. In 1977 I received an inquiry from him about the genus *Matudaea,* requesting that I send him a leaf specimen from the type collection of *Matudaea trinervia* Lundell. On the basis of studies of the fossil leaf anatomy, and the anatomy of the leaves from *Matudaea trinervia,* Dr. Walther concluded (personal communication): "Now I am absolutely sure that I have found the Tertiary *Matudaea* in the Middle Oligocene."

A new species, *Matudaea Menzelii* Walther, based on the fossil material, was described and fully illustrated (l.c., p. 51. 1978).

Matudaea trinervia Lundell (Plates 131, 132) was described as a new genus and species (Lloydia 3: 209–210. 1940), based on *Eizi Matuda S-194* (MICH, holotype; LL, isotype), collected in flower on Mt. Ovando, Chiapas, Mexico, April 9–12, 1937; same locality and date, *Matuda 1843* (MICH, paratype); same locality, at alt. of 2000 m., Nov. 14–18, 1939, *Matuda 3984* (LL, MICH, paratypes), fruits.

Taxa in the genus *Matudaea* are now known to range from Central Mexico through the mountains of southern Mexico, Guatemala, Honduras, and south to Nicaragua.

The discovery of the fossil species in the Tertiary of Central Europe is the first record of the genus outside of Middle America.

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NEOTROPICAL MYRSINACEAE – II

Cyrus Longworth Lundell

Ardisia acutata Lundell, sp. nov. – Arbor; rami crassi, ramulis crassiusculis, lepidotis; folia brevipetiolata, petiolo crasso, late marginato, ad 1 cm. longo; lamina subcoriacea, subtus peradpresse lepidota, supra glabra, lanceolata vel lanceolato-elliptica, 14–20 cm. longa, 4.5–6.5 cm. lata, apice acuminata, basi rotundata; inflorescentia terminalis, brevipedunculata, paniculata, ad 10 cm. longa, glabra; flores 5-meri, subcorymbosi; pedicelli fructiferi 5–8 mm. longi; sepala lanceolata, ca. 2 mm. longa, punctata; fructus subglobosus, ca. 6 mm. diam.

Large tree, the terminal branches large, the short branchlets rather stout, with buds and apical internodes lepidote with small appressed scales, otherwise glabrous; leaves with thick broadly marginate petioles up to 1 cm. long; leaf blades subcoriaceous, glabrous above with sulcate midvein, obscurely peradpressed lepidote beneath with elevated midvein and very slender primary veins, lanceolate or lanceolate-elliptic, 14–20 cm. long, 4.5–6.5 cm. wide, apex sharply acuminate, the base rounded and abruptly decurrent on the petiole; inflorescence terminal (or axillary rarely), paniculate, pyramidal, up to 10 cm. long, with short peduncle, the rachis and branches rigid, glabrous in fruit; flowers 5-parted, subcorymbose; fruiting pedicels 5–8 mm. long; sepals under fruits thin, punctate, lanceolate, drying about 2 mm. long, apex apparently obtuse; fruits depressed-globose, drying about 6 mm. in diameter; persistent style slender, 5 mm. long.

Nicaragua: Dept. Zelaya, along new road to Mina Nueva America (leading more or less westward from ca. 14.3 km. N of El Empalme on main road to Rosita), ca. 8.6 km. from main road, in tall evergreen forest on nearly level plain, April 27, 1978, *Warren Douglas Stevens 8414* (LL, holotype), large tree, infructescence branches red, fruits deep purple.

In the absence of flowers, the relationship is not evident, but it is a distinct species in the subgenus *Icacorea,* as delimited by Mez. The length of the style indicates that the corolla is about 6 mm. long.

Ardisia atrata Lundell, sp. nov. **Plate 133.**

Arbor; ramuli crassi, adpresse furfuracei; folia petiolata, petiolo late marginato, ca. 5 cm. longo; lamina subcoriacea, subtus adpresse lepidota, supra glabra, oblanceolata, ca. 45 cm. longa, 12.5 cm. lata, apice obtusiuscula, basi attenuata, integra; inflorescentia furfuracea, atrata, crassa, late paniculata, ca. 25 cm. longa, 25 cm. lata; flores 5-meri, capitellati; pedicelli crassiusculi, 2.5–3 mm. longi; sepala ovato-rotundata, ca. 2.5 mm. longa, 2–2.5 mm. lata, asymmetrica, parce punctata; ovarium glabrum; ovula 19; stylus 4.5–5.5 mm. longus, punctatus.

Tree, 8 m. tall, with thick branchlets covered with tightly appressed scales; leaves large, glabrous above, lepidote beneath with shiny tightly appressed scales, the petioles broadly marginate to base, about 5 cm. long, thick; leaf blades subcoriaceous, paler beneath, oblanceolate or elliptic-oblanceolate, up to 45 cm. long, 12.5 cm. wide, apex obtusish, base narrowed and widely marginate, margin entire, the thick midvein elevated beneath, impressed above, the fine lateral veins nearly horizontal; inflorescence

terminal, furfuraceous, drying blackish-brown, widely paniculate, up to 25 cm. wide at base, equally as long, the short peduncle and rachis thick; flowers 5-parted, in tight heads borne on short peduncles up to 1 cm. long; pedicels stout, 2.5 3 mm. long; sepals imbricate, ovate-rounded, rather thin, about 2.5 mm. long, 2–2.5 mm. wide, asymmetric, the overlapped edge of each sepal elongated and very thin, the glands large and reddish-black, dispersed, the margin irregular in young fruit; ovary glabrous, the styles slender, punctate, up to 5.5 mm. long; ovules 19 in placenta dissected, pluriseriate.

Panama: Prov. Colon, Rio Guanche, in forest along Rio Guanche, 3–7 km. above bridge, on forrested slope above river, elev. 300–700 ft., Oct. 1, 1978, *Barry Hammel, R. Foster & L. McDade 4902* (MO, holotype), tree 8 m. tall, immature fruits pale burgundy.

Related to *A. macrostachya* Lundell, but differing at once in its shorter pedicels and much smaller sepals. In *A. atrata* the inflorescence is bipinnate, in *A. macrostachya* it is tripinnate throughout and much larger.

Ardisia Avendañoi Lundell, sp. nov. – Arbor parva; ramuli crassiusculi, glabri; folia glabra, petiolis ad 2 cm. longis stipitata; lamina pallida, membranacea, punctata, elliptica vel obovato-elliptica, 16–20 cm. longa, 7–9 cm. lata, apice rotundata, basi acuta; inflorescentia axillaris, racemosa, 4–9 cm. longa, glabra; pedicelli fructiferi ad 11 mm. longi; flores 5-meri; sepala imbricata, late ovata, ca. 3 mm. longa, 3.5 mm. lata, apice rotundata, ciliolata, minute punctata; fructus subglobosus, ca. 8 mm. diam.

Small tree, 3 m. tall, the branchlets glabrous; leaves glabrous, the petioles rather stout, canaliculate, marginate at base of blade, up to 2 cm. long; leaf blades pallid, thinly membranaceous, punctate, broadly elliptic or obovate-elliptic, 16–20 cm. long, 7–9 cm. wide, apex rounded, base acute and decurrent on petiole, the midvein elevated beneath, impressed above, the lateral veins very slender and inconspicuous, the margin entire; inflorescence glabrous, strictly axillary, racemose, the solitary raceme up to 9 cm. long, few-flowered; pedicels of fruits up to 11 mm. long, thickened above, recurved, rigid; flowers 5-parted; sepals imbricate, 1 sepal with margins completely inside, 1 with margins completely outside, 3 with one margin outside, the other inside, broadly ovate, about 3 mm. long, 3.5 mm. wide, glandular-papillate within, rounded at apex, the margin rather thin and ciliolate, punctate with small reddish-black glands; fruits subglobose, small, drying about 8 mm. in diameter.

Mexico: Chiapas, Huixtla, a 6 km. antes de Coronado, Carretera terraceria El Retiro Coronado, selva alta perennifolia, alt. 600 m., Nov. 14, 1977, *J. I. Calzada, S. Avendaño & R. Ortega 3832* (LL, holotype), arbol, 3 m., fruto amarillo.

Of the *A. paschalis* Donn. Sm. complex, *A. Avendañoi* differs from the related taxa in having strictly axillary racemose inflorescences, thin elliptic leaves rounded at apex, and broadly ovate sepals.

Ardisia baruana Lundell, sp. nov. – Frutex; ramuli graciles, novelli minute lepidoti; folia glabra, petiolata, petiolo 5–7 mm. longo, anguste marginato; lamina chartacea vel subcoriacea, oblanceolata vel elliptico-oblanceolata, 5–9.5 cm. longa, 2.5–4 cm. lata, apice obtusa, basi acuta;

inflorescentia terminalis, tripinnato-paniculata, usque ad 12 cm. longa, corymbosa, multiflora, parce et minute lepidota; flores aurantiaco-punctati, 5-meri; pedicelli graciles, 3.5–5 mm. longi; sepala ovata, ca. 1.3 mm. longa, apice obtusa, parce et minute aurantiaco-punctata; corolla 6–7 mm. longa, basi connata ca. 0.8 mm.; petala anguste elliptico-oblonga, apice subsymmetrica, parce et minute aurantiaco-punctata; stamina ca. 4.5 mm. longa; filamenta 1.5–1.7 mm. longa; antherae anguste lanceolatae, 3.2–3.5 mm. longae; ovula ca. 22, pluriseriata; stylus ca. 5 mm. longus, epunctatus.

Shrub 3 m. tall, the branchlets slender, very minutely lepidote apically; leaves smooth with the veins scarcely discernible, the midvein elevated beneath, shallowly impressed above; glabrous except for sparsely lepidote petioles, petiolate, the petioles narrowly marginate to base, up to 7 mm. long, slender; leaf blades firm, subcoriaceous, oblanceolate or elliptic-oblanceolate, up to 9.5 cm. long, 4 cm. wide, mostly smaller, apex narrowed and obtuse, base acute and decurrent on the petioles; inflorescence terminal, tripinnately-paniculate, corymbose, up to 12 cm. long, densely flowered, sparsely lepidote with minute scales; flowers white, 5-parted, orange-punctate with small dispersed mostly rounded glands; pedicels up to 5 mm. long; buds slender; sepals thin, ovate, about 1.3 mm. long, obtuse, minutely orange-punctate, subentire; corolla 6–7 mm. long, connate at base less than 1 mm.; petals thin, narrow, elliptic-oblong, subsymmetric, punctate with small mostly rounded dispersed orange glands; stamens up to 4.5 mm. long; filaments attached almost at base of corolla tube, up to 1.7 mm. long; anthers linear-lanceolate, up to 3.5 mm. long, dehiscent at first by small apical pores; ovary rounded, the placenta with about 22 pluriseriate ovules; style not punctate, about 5 mm. long.

Panama: Prov. Chiriqui, 4 miles above Boquete on road to Volcan Baru, alt. 1475 m., May 18, 1976, *Thomas B. Croat 34857* (MO, holotype; LL, fragment), shrub 3 m., flowers white, stamens yellow.

Of the species of *Ardisia* referable to the subgenus *Icacorea* (sens. lat.), this is another of the multitude of closely related taxa with corymbose lepidote inflorescences and slender epunctate anthers dehiscent with apical pores which form a natural group in the *A. guianensis* (Aubl.) Mez complex. *A. baruana* has affinity to *A. rigidifolia* Lundell and *A. opaca* Lundell.

Ardisia Bawae Lundell, sp. nov. — Frutex; ramuli graciles, novelli dense lepidoti; folia petiolata, subtus novella lepidota, petiolo anguste marginato, 3–7 mm. longo; lamina membranacea, late elliptica vel raro obovata, 8–10 cm. longa, 3.5–6 cm. lata, apice subabrupte acuminata, basi acuta, subintegra; inflorescentia terminalis, dense lepidota, paniculata, 3–5 cm. longa; flores 4- vel 5-meri, subcorymbosi; pedicelli 2.5–4 mm. longi; sepala ovata, 1.3–1.5 mm. longa, parce punctata; corolla ca. 5.5 mm. longa; petala oblonga, apice asymmetrica, basi coalita ca. 1.2 mm.; stamina ca. 4 mm. longa; filamenta ca. 1.5 mm. longa; antherae lineari-oblongae, ca. 3 mm. longae, apice acutae, epunctatae; ovarium ovoideum; stylus ca. 5 mm. longus; ovula 18–20, pluriseriata.

Shrub; branchlets slender, densely and minutely lepidote at first; leaves petiolate, the petioles marginate, lepidote on lower surface, 3–7 mm. long; leaf blades membranaceous, broadly elliptic or rarely obovate and emargi-

nate, apex subabruptly acuminate, the acumen obtusish, base acute and decurrent, the margin subentire; inflorescence terminal, densely lepidote including pedicels, with short peduncle, paniculate, 3–7 cm. long; flowers 4- or 5-parted, subcorymbose or subumbellate; pedicels 2.5–4 mm. long; sepals ovate, 1.3–1.5 mm. long, sparsely punctate medially; corolla about 5.5 mm. long, the petals oblong, asymmetric at apex, inconspicuously and sparsely punctate with linear and small rounded orange-red glands, united at base into tube about 1.2 mm. long; stamens attached at middle of tube, about 4 mm. long including filaments 1.5 mm. long; anthers linear, about 3 mm. long, apex acute and dehiscent by two pores, base shallowly lobed, without glands; ovary ovoid, with punctate style about 5 mm. long; ovules 18–20, pluriseriate.

Costa Rica: Prov. Guanacaste, La Pacifica, near Cañas, riparian forests, rare, Dec. 28, 1973, *K. S. Bawa 2071* (MO, holotype), white flowers, visited by bees.

The species has a resemblance to *A. irazuensis* Oerst., a taxon collected at 3000 meters on Volcan Irazu. The two differ importantly in the size of flower parts.

Ardisia belizensis Lundell, Contr. Univ. Mich. Herb. 7: 38. 1942. Plate 134.

Belize (British Honduras): Stann Creek District, Stann Creek Valley, Big Eddy Ridge, in high ridge, Jan. 25, 1941, *Percy H. Gentle 3500* (LL, isotype), a tree, 15 cm. in diam., flowers white.

Ardisia Boltenii Lundell, sp. nov. – Frutex; ramuli crassi, apice peradpresse furfuraceo-lepidoti; folia petiolata, petiolo crasso, furfuraceo, usque ad 1 cm. longo; lamina chartacea, oblanceolata vel elliptico-oblanceolata, 20–35 cm. longa, 7–12 cm. lata, apice acuminata, basi attenuata, anguste rotundata, parce punctata, integra, subtus novella peradpresse lepidota; inflorescentia terminalis, furfuracea, angustissima paniculata, usque ad 25 cm. longa; flores 5-meri, glomerati; pedicelli 3–8 mm. longi, lepidoti; sepala crassa, ovata, 1.5–2 mm. longa, obtusiuscula, ciliolata, parce nigropunctata; corolla ca. 3.2 mm. longa, petala basi connata ca 1.3 mm., lanceolata, crassa; filamenta ca. 1 mm. longa; antherae crassae, lanceolatae, obtusae; ovarium glabrum; ovula 9 vel 10; stylus c. 3.2 mm. longus.

Shrub, often unbranched, 1–1.5 m. tall, with thick appressed-furfuraceous brownish stems; leaves large, thin, paler beneath, short petiolate, the petioles thick, up to 1 cm. long, furfuraceous; leaf blades chartaceous, oblanceolate or elliptic-oblanceolate, up to 35 cm. long, 12 cm. wide, apex acuminate, attenuate to the narrowly rounded base, lepidote beneath with closely appressed scales, brownish when dry, with scattered small black rounded glands, the margin entire, midvein impressed above, stout and elevated beneath, the primary lateral veins 26–30, slender but conspicuous beneath, forming distinct marginal vein; inflorescence terminal, furfuraceous, narrowly paniculate, up to 25 cm. long with long peduncles, the basal branches of panicles branched once and sometimes with secondary peduncle in axils, the upper peduncles of inflorescence racemose, 3–11 mm. long, each terminated by a dense glomerule of flowers; pedicels slender but rigid, erect or curved, 3–8 mm. long, accrescent; flowers 5-parted, rather sparsely lepidote, all parts thickened; sepals thick and

rigid, mostly ovate, 1.5–2 mm. long, obtusish, irregularly ciliolate, sparsely punctate with large black glands; corolla about 3.2 mm. long *(Mori & Bolten 7650)*, the petals connate at base into narrow tube about 1.3 mm. long, the petals linear-lanceolate, thick, punctate; filaments attached below apex of corolla tube, slender, about 1 mm. long; anthers thick, lanceolate, longitudinally dehiscent, obtusish, glands not evident dorsally in specimens available; ovary glabrous with slender style about 3.2 mm. long; ovules 9 or 10; fruits globose (immature).

Panama: Prov. Veraguas, valley of Rio Dos Bocas along road between Escuela Agricola Alto Piedra and Calovebora, 15.6 km. NW of Santa Fe, in primary forest, along trail to Santa Fe, steep forested hill east of river, 450-550 m. elev., Aug. 31, 1974, *Thomas B. Croat 27652* (MO, holotype), shrub 1 m., inflorescence reddish-violet, fruits paler, subglobose; same general locality, July 25, 1974, *Croat 25791* (MO), shrub less than 1 m., inflorescence and flowers reddish-violet; 8.8 km. from Escuela Agricola Alto de Piedra, NW of Santa Fe, in forest, Nov. 16, 1974, *S. Mori & J. Kallunki 3211* (MO), very common shrub, 1.5 m. tall; 14 km. NW of Santa Fe, on road to Calovebora (Panama Hwy 35), Aug. 4, 1975, *S. Mori & A. Bolten 7650* (MO), unbranched shrub, 1.5 m. tall, inflorescence and corolla reddish-purple, anthers yellow.

Nicaragua: Dept. Zelaya, ca. 6.3 km. S of bridge at Colonia Yolania and ca. 0.8 km. S of ridge of Serranias de Yolania on road to Colonia Manantiales (Colonia Somoza), primary tall evergreen forest on steep slopes, elev. ca. 200–300 m., Oct. 29–31, 1977, *Warren Douglas Stevens 4799* (MO), rare, naked erect stem ca. 3 dm. tall, cluster of leaves at top, fruits deep red-purple, fleshy; Cano Costa Riquita, ca. 1.8 km. SW of Colonia Naciones Unidas, above road between Colonia Nueva Leon and Colonia Naciones Unidas, tall wet forest along stream and on slopes, elev. 150–180 m., Nov. 6–7, 1977, *Stevens 5061* (MO), erect woody stem ca. 2 dm. tall, fruits red with black dots.

Referable to the distinctive group of taxa with glomerate flowers, which includes *A. palmana* Donn. Sm. and *A. fimbrillifera* Lundell, *A. Boltenii* stands out with its long very narrow inflorescence, the flowers above base borne in glomerules on rather short peduncles. The inflorescence above base is essentially a narrow raceme of glomerate flowers. Good flowering specimens of *A. Boltenii* are needed. Its inflorescence has a resemblance to *A. Hagenii* Lundell and *A. Dwyeri* Lundell of Panama, both taxa otherwise quite different.

Ardisia boquetensis Lundell, sp. nov. — Arbor parva; ramuli crassiusculi, novelli adpresse furfuracei; folia petiolata, petiolo marginato crassiusculo, 7–10 mm. longo, subtus adpresse furfuraceo; lamina chartacea, supra glabrata, subtus adpresse furfuracea, anguste oblongo-elliptica vel oblanceolato-oblonga, 9–14.5 cm. longa, 2–4 cm. lata, apice obtusa vel acuta, basi acuta, margine integra; inflorescentia terminalis, paniculata, pyramidalis, usque ad 22 cm. longa, parce furfuracea; flores 5-meri, capitellati, subsessiles; pedicelli crassi, usque ad 2 mm. longi et diam.; sepala late ovata et lanceolata, 2–2.4 mm. longa, obtusa, punctata, margine minute erosa; fructus globosus, ca. 1 cm. diam.

Tree, 5 m. tall, with rather stout angled branchlets, at first appressed-furfuraceous with brown scales like the terminal buds; leaves drying brownish on both surfaces, with petioles rather stout, less than 10 mm.

long, marginate to base; leaf blades chartaceous, densely appressed-furfuraceous beneath, glabrate above, narrowly elliptic or oblanceolate-oblong, up to 14 cm. long, 4 cm. wide, apex acute to obtuse, base acute, conspicuously punctate, margin entire, lateral veins slender, inconspicuous, the midvein narrowly impressed above, elevated beneath, inflorescence terminal, bipinnately paniculate, large, pyramidal, few-branched, up to 22 cm. long, sparsely furfuraceous (in fruit); flowers in small heads borne on short spur-like branches of the primary branches, subsessile, 5-parted; pedicels of fruits very thick and crowded, less than 2 mm. long and equally as thick; sepals thin, ovate-rounded to lanceolate in same flower, 2–2.4 mm. long, usually obtusish, punctate with numerous small dispersed reddish-black glands, the margin minutely erose; fruits globose, about 1 cm. in diam.

Panama: Prov. Chiriqui, on Boquete Trail, 4 km. from Cerro Punta, near Paso de Respingo, in disturbed oak forest, ca. 2300 m. alt., April 22, 1975, *S. Mori & J. Kallunki 5733* (LL, holotype), tree, 5 m. tall, fruits purple, very tasty.

Of the species with glomerate flowers, *A. boquetensis* has a resemblance in leaf form to *A. Hagenii* Lundell of the same general area, but differs at once in its pyramidal inflorescence and thin small sepals. The material is inadequate to indicate the relationship of the taxon.

Ardisia bracteolata Lundell, sp. nov. — Frutex; ramuli crassiusculi, glabri; folia petiolis ad 1.5 cm. longis canaliculatis stipitata; lamina glabra, membranacea, elliptico-lanceolata, ad 23 cm. longa, 8 cm. lata, apice subacuminata, basi acuta, margine integra, subtus prominulo-reticulata et punctis breviter lineoliformibus picta; inflorescentia terminalis, glabra, compacte bipinnatim paniculata, 7 cm. longa, 10 cm. lata, dense bracteolata; flores 5-meri, corymbosi; pedicelli fructiferi ad 1.7 cm. longi, graciles; sepala oblonga, ad 4.5 mm. longa, 2 mm. lata, membranacea, apice rotundata, dense nigropunctata; bacca globosa, ca. 4.5 mm. diam., dense punctata.

Shrub, 2 m. tall, the branchlets thickish, glabrous; leaves with thick canaliculate petioles up to 1.5 cm. long; leaf blades glabrous, membranaceous, elliptic-lanceolate, up to 23 cm. long, 8 cm. wide, apex short acuminate with acutish acumen, base acute and decurrent, margin entire, finely veined below with the slender primary veins anastomosing into marginal vein about 5 mm. from edge, conspicuously black-punctate with mostly short linear glands, the surface appearing to be mottled; inflorescence terminal, glabrous, compactly bipinnately paniculate, broader than long, densely bracteolate, the bractlets membranaceous, oblong, up to 7 mm. long subtending the pedicels, larger below, persistent in fruit; flowers 5-parted, corymbose; pedicels of fruits slender, up to 1.7 cm. long; sepals oblong, up to 3.5 mm. long, 2 mm. wide, membranaceous, rounded at apex and often inconspicuously emarginate, densely punctate with thick mostly linear black glands; fruits globose, about 4.5 mm. in diameter when dry, prominently punctate.

Nicaragua: Dept. Zelaya, 6.3 km. S of bridge at Colonia Yolania on road to Colonia Manantiales of Nueva Guinea, in primary tall evergreen forest, elev. 200–300 m., Feb. 13–14, 1978, *Paul C. Vincelli 252* (MO, holotype), large shrub in forest, 2 m., mature fruits dark pink.

A. bracteolata belongs in the *A. opegrapha* Oerst. group of the subgenus *Graphardisia,* and it appears to differ significantly in its persistent bractlets subtending the pedicels. These are caducous in *A. opegrapha* and related taxa. The comparatively small thin sepals of *A. bracteolata* are narrowly oblong and rounded at apex, sometimes emarginate.

Ardisia calvarioana Lundell, sp. nov. — Frutex; ramuli graciles, glabrati; folia petiolis 1–2 cm. longis stipitata, parce lepidota; lamina anguste oblanceolata, 10–15 cm. longa, 2–4 cm. lata, apice subacuminata, basi attenuata, acuminata, membranacea, nigropunctata; inflorescentia terminalis, gracilis, pauciflora, paniculata, ca. 6 cm. longa, glabra; flores 5-meri; pedicelli fructiferi ad 1.4 cm. longi; sepala 5, ovata, ca. 1.5 mm. longa, acuta, ciliolata, parce punctata; fructus subglobosus, ca. 7 mm. diam.

Shrub, 1 m. tall; branchlets slender with the leaves clustered at apex, glabrous in fruit; leaves with long slender canaliculate petioles 1–2 cm. long, these sparsely lepidote; leaf blades membranaceous, narrowly oblanceolate, 10–15 cm. long, up to 4 cm. wide, apex acute or short acuminate, base attenuate, acuminate and decurrent on petiole, black-punctate, the midvein narrow and elevated on both surfaces, the primary lateral veins slender, not reticulate; inflorescence terminal and axillary(?), very slender, paniculate, with a single branch, about 6 cm. long including peduncle up to 4 cm. long, glabrous; flowers 5-parted, subcorymbose; fruiting pedicels slender, up to 1.4 cm. long; sepals 5, thin, ovate or broadly ovate, imbricate, about 1.5 mm. long, acute, ciliolate, punctate with dispersed rounded glands; fruits red, subglobose, drying 6–7 mm. in diam.

Panama: Prov. Cocle, area around Rivera Sawmill, near top of Alto Calvario, 7 km. north of El Cope, New Works, trout stream, alt. 700–850 m., Oct. 20, 1977, *J. P. Folsom & R. Page 5970* (MO, holotype), shrub of 1 m., fruit red.

The reduced slender inflorescence with only a single branch, smaller sepals about 1.5 mm. long, and elongated petioles distinguish the taxon from *A. stenophylla* Donn. Sm. which it resembles. In the latter the leaves are reticulate veined beneath, while no reticulation is evident in *A. calvarioana*. Flowers are needed to better establish affinities.

Ardisia campanensis Lundell, sp. nov. — Frutex; ramuli crassiusculi, glabrati; folia subsessilis, petiolo crasso, marginato, ad 5 mm. longo; lamina chartacea, subtus peradpresse lepidota, oblongo-oblanceolata vel lanceolato-elliptica, 11–20 cm. longa, 3.5–6.5 cm. lata, apice acuminata, acumine obtusiuscula, basi rotundata; inflorescentia terminalis, subsessilis, paniculata, ad 5 cm. longa, 4 cm. lata, basi lepidota; pedicelli 3.5–5 mm. longi; flores 5-meri; sepala ovata, ca. 1.5 mm. longa, punctata, apice rotundata; corolla ca. 6 mm. longa, basi coalita ca. 1.3 mm., oblongo-elliptica, ca. 2 mm. lata, lineata; stamina 4.4 mm. longa; filamenta ca. 1.4 mm. longa; antherae lineari-lanceolatae, ca. 3.5 mm. longae; stylus 5.5 mm. longus; ovula 28 vel 29.

Shrub, 1.5 m. tall, the branchlets rather stout, glabrate early; leaves essentially sessile, the thick petioles broadly marginate, up to 5 mm. long; leaf blades chartaceous, the lower surface lepidote with scarcely

discernible closely appressed scales, paler, oblong-oblanceolate or lanceolate-elliptic, 11–20 cm. long, 3.5–6.5 cm. wide, apex attenuate acuminate with obtusish acumen, base broadly rounded, the midvein elevated beneath, narrowly sulcate above, the lateral veins slender, inconspicuous, not discernible above; inflorescence terminal, subsessile, paniculate with short branches, about 5 cm. long, 4 cm. wide, the two basal internodes lepidote, otherwise glabrous; pedicels 3.5–5 mm. long; flowers 5-parted, subcorymbose; calyx 1.5–1.8 mm. long; sepals free nearly to base, ovate, about 1.5 mm. long, rounded at apex, conspicuously red-black punctate with rounded glands, the margin minutely erose; corolla about 6 mm. long, the petals connate about 1.3 mm. at base, oblong-elliptic, 2 mm. wide, conspicuously red-black punctate medially; stamens 4.4 mm. long; filaments slender, attached at base of corolla tube, about 1.4 mm. long; anthers drying dark, linear-lanceolate, epunctate, dehiscent by apical pore-like slits, about 3.5 mm. long, the short basal lobes not spreading; style 5.5 mm. long; ovules 28 and 29 in ovaries dissected.

Panama: Prov. Panama, Cerro Campana, alt. 800–1000 m., April 3, 1972, *Al Gentry 4941* (MO, holotype), shrub 1.5 meters, flowers white, inflorescence rachis pinkish.

This is the species which I reported as *A. copeyana* Standl. in the *Flora of Panama* (Ann. Missouri Bot. Gard. 58: 351. 1971) on the basis of *Allen 4023* (MO, P) from Cerro Campana. *A. copeyana* is entirely glabrous (in fruit), the leaves differ markedly in shape and venation, as well as being glabrous, not appressed scaly beneath as in *A. campanensis*. *A. copeyana* is known to me only from fruiting Costa Rican type. *Allen 4023* has leaves scaly beneath as in the holotype of *A. campanensis*.

Ardisia capitellata Lundell, sp. nov. Plate 135.

Arbor; ramuli crassiusculi, adpresse furfuracei; folia subsessilifolia, petiolo late marginato, adpresse furfuraceo; lamina chartacea, oblongo-lanceolata vel anguste oblongo-elliptica, usque ad 30 cm. longa, 7.5 cm. lata, apice subabrupte acuminata, basi attenuata, margine integra, subtus dense adpresse lepidota, aurantiaco-punctata; inflorescentia terminalis, pyramidalis, pedunculata, paniculata, usque ad 20 cm. longa, lepidota; flores 5-meri, raro 6-meri, dense glomerati; pedicelli crassi, 1–1.5 mm. longi; sepala asymmetrica, dense aurantiaco-punctata, albomarginata, ovato-elliptica, usque ad 2.5 mm. longa, 2.3 mm. lata, fimbriata et erosa; corolla glabra; petala asymmetrica, basi connata, dense aurantiaco-punctata; antherae subsessiles, crassae, lanceolatae; ovarium glabrum; ovula pluriseriata, parva.

Tree, 4 m. tall, the branchlets rather thick, furfuraceous with appressed scales; leaves essentially sessile, the blade broadly marginate to base; leaf blades thin, chartaceous, oblong-lanceolate or narrowly oblong-elliptic, up to 30 cm. long, 7.5 cm. wide, subabruptly acuminate, the base attenuate, appressed-lepidote beneath, with elevated midvein, the primary lateral veins slender, forming a submarginal vein; inflorescence terminal, tripinnately paniculate, with few primary branches, lepidote; flowers glomerate in small dense pedunculate heads, each flower subtended by broadly ovate lepidote orange-punctate bract; pedicels thicker than long, up to 1.5 mm. long; sepals asymmetric, with the wider included side

fimbriate, ovate-elliptic, up to 2.5 mm. long, 2.3 mm. wide, densely orange-punctate, bordered by a white margin; corolla glabrous, 4 mm. long in bud; petals asymmetric, connate at base, densely orange-punctate; anthers (in bud) subsessile, large, lanceolate, acutish, dehiscent longitudinally; the filaments very short; ovary glabrous, the ovules pluriseriate, small.

Costa Rica: Prov. Puntarenas, primary forest along Rio Coto Brus, near Cotan, 23 km. north of La Union (on Panama border), Aug. 9, 1974, *Thomas B. Croat 26678* (LL, holotype), tree 4 m., flowers pale red-violet in bud.

In the taxa with glomerate flowers and asymmetric sepals, *A. capitellata* may be readily recognized by the unique orange glands of its calyx and corolla.

Ardisia cartagoana Lundell, sp. nov. — Arbor parva; ramuli crassi, lepidoti; folia membranacea, subsessilia, petiolo ca. 5 mm. longo; lamina oblanceolata, 20–30 cm. longa, 6–9 cm. lata, apice subabrupte acuminata, basi rotundata, costa subtus lepidota, lamina glabra, integra; inflorescentia terminalis, lepidota, late spicato-paniculata, ca. 20 cm. longa; flores 5-meri, sessiles; sepala basi lepidota, late ovato-rotundata, ca. 2.7 mm. longa, ciliolata, pallida, pellucido-punctata; petala pellucido-punctata, elliptica, extus basi lepidota; filamenta ca. 0.8 mm. longa; antherae lanceolatae, crassae, acutae; ovarium glabrum; ovula 11 vel 12, pluriseriata.

Tree, 3 m. tall with thick lepidote stems; leaves large, subsessile, the thick petiole usually less than 5 mm. long; leaf blades membranaceous, glabrous except for the coarse lepidote midvein beneath, the slender primary veins 30 or more, the blades oblanceolate, up to 30 cm. long, 9 cm. wide, apex subabruptly narrowed to the short acumen, base narrowed and abruptly rounded; inflorescence (in bud) terminal, large, with 5 or 6 stout branches with foliaceous bracts at base, spicate-paniculate, about 20 cm. long and wide, pyramidal, the sessile flowers crowded on branchlets, 5-parted; calyx pallid, lepidote at base, the sepals broadly ovate-rounded, about 2.7 mm. long, thin, pellucid-punctate, ciliolate; corolla (in bud) sparsely lepidote at base, the petals (in bud) elliptic, pellucid-punctate, thin; stamens (in bud) with short slender filaments and thick lanceolate anthers acute at apex and apparently dehiscent longitudinally, with glands dorsally; ovary glabrous; ovules 11 or 12, pluriseriate.

Costa Rica: Prov. Cartago, along road between Juan Vinas and Turrialba, 7 km. west of Turrialba, along ditch at edge of cane fields, July 1, 1976, *Thomas B. Croat 36841* (MO, holotype), tree 3 m., flowers white.

Of close affinity to *A. palmana* Donn. Sm., *A. cartagoana* has sessile large pallid flowers, sepals almost twice as large and very short filaments. The flowers of *A. palmana* are subglomerate, while in *A. cartagoana* they are spicate although crowded.

Ardisia chocoana Lundell, sp. nov. — Frutex; ramuli graciles novelli adpresse lepidoti; folia petiolis ad 7 mm. longis stipitata; lamina membranacea vel subchartacea, subtus parce lepidota, supra glabra, anguste lanceolato-oblonga vel oblanceolata, 8–14 cm. longa, 1.7–3 cm. lata, apice acuminata, basi cuneata, margine denticulato-serrulata, punctata; inflorescentia terminalis, paniculata, ca. 5 cm. longa, lepidota; flores racemoso-

corymbosi, 4-meri; pedicelli 3–4 mm. longi; calyx ca. 2 mm. longus; sepala imbricata, anguste lanceolata, ad 1.9 mm. longa, acuta, dense punctata; corolla ca. 4 mm. longa; petala basi coalita, lanceolata, apice acuta, subsymmetrica, aurantiaco-punctata, opaca; stamina ca. 2.3 mm. longa; filamenta ca. 0.5 mm. longa; antherae lanceolatae, apice acutae, epunctatae; ovarium ovoideum; stylus ca. 3.4 mm. longus; ovula 7 vel 8.

Shrub 1.5 m. tall, the branchlets slender, appressed-lepidote at first; leaves with canaliculate petioles up to 7 mm. long; leaf blades thin, membranaceous or subchartaceous, sparsely appressed-lepidote beneath, densest along midvein and petiole, glabrous above, very narrowly lanceolate-oblong or oblanceolate, 8–14 cm. long, 1.7–3 cm. wide, apex acuminate, base cuneate and narrowly decurrent on petiole, margin conspicuously denticulate-serrulate, punctate with dispersed rather prominent rounded glands, the midvein elevated beneath, narrowly impressed above, primary lateral veins arcuately ascending, slender and inconspicuous; inflorescence terminal, paniculate, with 5 or 6 branches, slender, about 5 cm. long including peduncle, lepidote; flowers racemose-corymbose, 4-parted; pedicels slender, 3–4 mm. long; calyx about 2 mm. long; sepals imbricate, free nearly to base, narrowly lanceolate, up to 1.9 mm. long, acute, opaque, conspicuously punctate with comparatively large orange glands; corolla about 4 mm. long; petals united at base, lanceolate, apex acutish and subsymmetric, orange-punctate, opaque; stamens about 2.3 mm. long; filaments short, stout, about 0.5 mm. long, attached near base of corolla tube, anthers lanceolate, apex acute, the short basal lobes rounded, epunctate; ovary ovoid with style about 3.4 mm. long; ovules few, 7 or 8.

Colombia: Choco, Rio San Juan near Tado, alt. 100 m., riverside pluvial forest, Aug. 15, 1976, *Al Gentry & Mary Fallen 17768* (LL holotype), shrub 1.5 m. tall, flowers pinkish, petals 4, fruits red, common.

A. chocoana, apparently referable to the subgenus *Icacorea*, is exceptionally well-marked by its 4-parted flowers, few ovules, and very slender denticulate-serrulate leaves. The rachis of the slender elongated corymbose racemes has conspicuous nodules where slender bractlets subtend pedicels.

A. chocoana resembles *A. popayanensis* Mez in leaf form, but that taxon is keyed by Mez to species with 5-parted flowers.

Ardisia colombiana Lundell, Wrightia 4: 44. 1968. Plate 136.

Colombia: Dept. Choco, vicinity of Camp Curiche, S of Boca Curiche, May 26, 1967, *J. A. Duke 11680* (LL, holotype), small tree, flowers pinkish, fruits turning black.

Ardisia coloradoana Lundell, sp. nov. — Arbor; ramuli crassiusculi, peradpresse furfuracei; folia parva, petiolata, petiolo 5–17 mm. longo, canaliculato, furfuraceo; lamina chartacea, anguste elliptica vel lanceolata, 4–8 cm. longa, 1.3 2.5 cm. lata, apice acuminata, basi acuta, supra glabra, subtus adpresse furfuracea, integra; inflorescentia terminalis, paniculata, ca. 7 cm. longa, pedunculata, dense furfuracea; flores 5-meri; pedicelli glabrati, 2–4 mm. longi; sepala ovato-elliptica, ca. 2 mm. longa, fimbrillifera, parce nigropunctata, acutiuscula, symmetrica; corolla ca. 4 mm. longa, glabra; petala basi breviter connata, elliptico-lanceolata,

apice acuta, asymmetrica, parce nigropunctata; filamenta ca. 0.75 mm. longa; antherae lanceolatae, ca. 1.5 mm. longae, acutae; ovarium oblongum; ovula ca. 10; stylus ca. 3 mm. longus.

Tree, 5 m. tall, the branchlets rather stout, densely appressed-furfuraceous, the scales brown; leaves small, mostly long petiolate, the petioles up to 1.7 cm. long, furfuraceous; leaf blades firm, chartaceous, furfuraceous beneath, glabrous above, narrowly elliptic or lanceolate, up to 8 cm. long, 2.5 cm. wide, the apex subabruptly acuminate, the base decurrent on the petiole, margin entire, the midvein elevated beneath, narrowly impressed above, the primary veins rather obscure; inflorescence terminal, paniculate, about 1 cm. long with peduncle half the length, furfuraceous; flowers 5-parted, nearly glabrous; pedicels almost glabrous, 2–4 mm. long; sepals ovate-elliptic, mostly about 2 mm. long, short fimbriate, rather sparsely punctate with black glands, rounded to acutish, symmetrical; corolla about 4 mm. long, glabrous, the petals short connate at base, narrowly elliptic-lanceolate, the apex acute, asymmetrical, rather sparsely black-punctate; filaments slender, attached about middle of the short corolla tube; anthers small, lanceolate, about 1.5 mm. long, acute, longitudinally dehiscent; ovary oblongish, the ovules 10 in flower dissected, the style slender, about 3 mm. long.

Panama: Prov. Chiriqui, Cerro Colorado, 34–35.6 km. above Rio San Felix (13–14.6 km. above turnoff to Escopeta), disturbed primary forest, cloud forest, elev. 1390–1410 m., July 15, 1976, *Thomas B. Croat 37235* (MO, holotype), tree 5 m., flowers white, leaves rusty-brown beneath.

With its small flowers, symmetrical sepals, and scaly indument, the taxon probably has affinity to *A. Boltenii* Lundell and *A. megistophylla* Lundell, both of which have large very different leaves and inflorescences.

Ardisia compressa Kunth, Nov. Gen. & Sp. 3: 245. 1818. Plate 137.

Venezuela: Caripe, Herbier Humboldt & Bonpland *165* and *185* (P, holotype).

Ardisia conglobata Lundell, sp. nov. Plate 138.

Arbor; ramuli crassiusculi, adpresse furfuracei; folia pallida, supra glabra, subtus adpresse furfuraceo-lepidota, petiolata, petiolo canaliculato, 4–8 mm. longo; lamina chartacea vel subcoriacea, integra, anguste oblongo-elliptica vel lanceolata, 5.5–14.5 cm. longa, 1.6–4 cm. lata, apice subacuminata vel acutiuscula, basi acuta; inflorescentia axillaris, ca. 3.5 cm. longa, conglobata, pedunculata, furfuracaea; flores glomerati, 5-meri, crassi; pedicelli crassi, 1.5–2 mm. longi, furfuracei; sepala crassa, lepidota, late rotundata, asymmetrica, usque ad 3 mm. longa, 5 mm. lata, punctata, eroso-ciliata; corolla glabra; petala crassa, basi connata, apice asymmetrica, nigropunctata; filamenta crassa, ca. 1 mm. longa; antherae crassae, lanceolatae, ca. 5 mm. longae, acutae, punctatae; ovula pluriseriata, numerosa; stylus ca. 6 mm. longus, nigropunctatus.

Tree, 7 m. tall, the branchlets brownish, furfuraceous with closely appressed scales; leaves drying grayish, paler beneath, appressed furfuraceous-lepidote beneath, glabrous above, petiolate, the rather thick petioles canaliculate, up to 8 mm. long; leaf blades slender, mostly oblongish, up to 14.5 cm. long, 4 cm. wide, tapering to the acutish subacuminate apex and base, decurrent on the petiole, margin entire, midvein

elevated beneath, narrowly impressed above, the lateral veins slender and inconspicuous on both surfaces; inflorescence axillary, a short panicle of glomerate flowers about 3.5 cm. long, including stout peduncle about 2 cm. long, the heads on peduncles up to 4 mm. long, furfuraceous; pedicels thick, up to 2 mm. long, tapering into the broad base of calyx; sepals thick, depressed-rounded, asymmetric with enclosed margin elongated, up to 3 mm. long, 5 mm. wide, forming a tight cupulate calyx, punctate with rather small mostly rounded reddish or black glands, these not dense, margin erose-ciliate at first; corolla glabrous, thickish; petals (in bud) asymmetric at apex, oblong-elliptic, connate about one-fourth at base, conspicuously black-punctate with rather large glands; stamens borne at apex of tube, the filaments thick, about 1 mm. long (in buds); anthers thick, lanceolate, about 5 mm. long (in buds), acute, dehiscent longitudinally, with a dark punctate area dorsally; ovules pluriseriate, small, numerous; styles (in buds) slender, black-punctate with small glands above middle.

Panama: Prov. Panama, El Llano-Carti Road, 9.8 km. from Inter-American Hwy., alt. 1100–1200 ft., in wet forest, Dec. 28, 1974, *S. Mori, J. Kallunki & B. Hansen 4172* (LL, holotype), tree, 7 m. tall, 7 cm. dhb., leaves paler green below, petals intense pink, reflexed.

The holotype contains only flower buds, but the collector describes the petals as intense pink and reflexed. In the conglomerate-flowered group of *Ardisia*, centered in Panama and Costa Rica, *A. conglobata* is well-marked by its small axillary inflorescence, consisting of congested flower heads, and by its slender subcoriaceous leaves.

Ardisia conglomerata Lundell, sp. nov. – Arbor; ramuli crassi, rufo-tomentosi; folia crassa, petiolata, petiolo crasso, canaliculato, 6–10 mm. longo, rufo-vestito; lamina coriacea, elliptica vel obovato-elliptica, 9–17 cm. longa, 4–7 cm. lata, apice subabrupte subacuminata, acumine obtusiuscula, basi acuta, margine integra, supra glabra, subtus furfuraceo-lepidota et parce hirsuta, trichomata dendroidea; inflorescentia crassa, terminalis, subsessilis, parva, paniculata, ca. 4 cm. longa, rufo-vestita; flores conglomerati, 5-meri, subsessiles; pedicelli crassi, ca. 0.8 mm. longi; sepala rotundato-ovata, ca. 1.2 mm. longa, asymmetrica, parce nigro-punctata, margine fimbrillifera; corolla 3 mm. longa; petala basi connata, lanceolata, ca. 2.5 mm. longa, acuta, ciliata, nigropunctata; filamenta 1 mm. longa; antherae lanceolatae, ca. 1.8 mm. longae, acutae; stylus ca. 3.2 mm. longus.

Tree 10 m. tall, the branchlets thick, rufous-tomentose with sordid dendroid trichomes; leaves thick, rigidly coriaceous, short petiolate, the petioles thick, up to 10 mm. long, pubescent like the branchlets and furfuraceous; leaf blades elliptic or obovate-elliptic, up to 17 cm. long, 7 cm. wide, with short obtusish acumen at apex, the base narrowed, acute and decurrent on the petiole, glabrous above with impressed midvein, furfuraceous-lepidote beneath and with scattered erect trichomes beneath; inflorescence terminal, subsessile, congested, broadly paniculate, the panicle about 4 cm. long, nearly twice as wide at base, the rachis and branches thick, pubescent like the stem; flowers in sessile glomerules, conglomerate, 5-parted; pedicels thick, less than 1 mm. long; sepals rounded-ovate, about 1.2 mm. long, asymmetrical, punctate with a few

black glands, the margin fimbrillate; corolla 3 mm. long; petals connate at base, lanceolate, about 2.5 mm. long, acute, symmetrical, ciliate, black-punctate; filaments slender, fully 1 mm. long; anthers lanceolate, about 1.8 mm. long, acute, longitudinally dehiscent; style slender, about 3.2 mm. long.

Panama: Prov. Veraguas, NW of Santa Fe, 2 km. from Escuela Agricola Alto de Piedra, cloud forest on ridge top below summit of Cerro Tute, Mar. 28, 1975, *S. Mori & J. Kallunki 5275* (MO, holotype), tree, 10 m. tall.

Like *A. glomerata* Lundell, the indument consists of both scales and trichomes, the latter usually dendroid. Otherwise the two are totally different. The small flowers with asymmetric sepals and ciliate symmetric petals, together with the thickly branched small panicle with congested glomerules and short thick pedicels set *A. conglomerata* apart from the related taxa with glomerate flowers.

The flowers are described from dried fragments, for the single available inflorescence is in young fruit.

Ardisia Correae Lundell, sp. nov. Plate 139.

Frutex; ramuli crassi, adpresse furfuracei; folia petiolata, petiolo crassiusculo, usque ad 1.5 cm. longo, marginato; lamina chartacea, supra glabra, subtus novella adpresse lepidota, oblongo-lanceolata, usque ad 27 cm. longa, 7.5 cm. lata, apice acuminata, basi acuta, integra, punctata; inflorescentia terminalis, pyramidalis, paniculata, usque ad 30 cm. longa, laxa, lepidota; pedicelli 7–10 mm. longi, graciles; flores 5-meri, subcorymbosi; calyx ca. 4 mm. longus; sepala imbricata, rotundata, crassa, 2.8–3 mm. lata, 3 mm. longa, asymmetrica, apice emarginata, aurantiaco-punctata, margine scariosa ciliataque; corolla rosea, ca. 8.5 mm. longa, crassa; petala basi coalita ca. 2.8 mm., lepidota, oblongo-elliptica, ca. 3 mm. lata, apice asymmetrica, aurantiaco-punctata; stamina ca. 5 mm. longa; filamenta ca. 1 mm. longa; antherae crassae oblongo-lanceolatae, ca. 4 mm. longae, basi subsagittatae, apice obtusae; ovarium anguste ovoideum, ca. 2.7 mm. longum; stylus ca. 4.5 mm. longus, punctatus; ovula 32, pluriseriata.

Shrub, 3 m. tall, the branchlets thick and tightly appressed-furfuraceous; leaves large, with stout narrowly marginate petioles 0.7–1.5 cm. long; leaf blades chartaceous, glabrous above, appressed-lepidote beneath at first, densely punctate with small black glands, oblong-lanceolate, up to 27 cm. long, 7.5 cm. wide, apex acuminate, base acute and decurrent on petiole, midvein thick, elevated beneath, impressed above, the primary lateral veins slender, about 20 pairs, the margin entire; inflorescence terminal, large and open, with zigzag rachis and branches, tripinnate, paniculate, up to 30 cm. long, nearly as wide at base, pyramidal, with large foliaceous bracts below main branches, lepidote; flowers 5-parted, subcorymbose, with slender pedicels up to 10 mm. long; calyx about 4 mm. long, thick; sepals thick, imbricate, depressed orbicular, up to 3 mm. long and wide, with well developed ear on overlapped margin, asymmetric, the apex rounded, shallowly emarginate, ciliolate; corolla thickish, about 8.5 mm. long, including tube about 2.8 mm. long, the tube lepidote on outer surface; petals oblong-elliptic, asymmetric at apex, orange-punctate; stamens borne at apex of corolla tube, about 5 mm.

long; filaments fully 1 mm. long; anthers thick, about 4 mm. long, opening by apical pores, epunctate, obtuse, subsagittate at base; ovary narrowly ovoid, about 2.7 mm. long; style about 4.5 mm. long, punctate; ovules 32, pluriseriate.

Panama: Prov. Chiriqui, NE del campamento de Fortuna, camino hacia la finca de Landau, elev. 1000–1200 m., Sept. 24, 1976, *M. D. Correa A. et al. 2690* (MO, holotype), arbusto de 3 metros con flores rosadas.

A close relative of *A. glanduloso-marginato* Oerst., *A. Correae* differs in its larger entire leaves, large inflorescences exceeding the leaves, rounded emarginate asymmetric sepals, and large corolla about 8.5 mm. long. Both species have zigzag-branched inflorescences.

Ardisia crassipedicellata Lundell, sp. nov. Plate 140.

Arbor; ramuli crassi, furfuracei; folia magna, petiolata, petiolo crasso, canaliculato, usque ad 2 cm. longo, furfuraceo; lamina coriacea, usque ad 28 cm. longa, 8.5 cm. lata, oblongo-elliptica, apice subacuminata, acutuiscula, basi subattenuata, acuta, supra glabra, subtus brunneo-furfuraceo-lepidota, margine integra; inflorescentia terminalis, paniculata, usque ad 25 cm. longa, basi 18 cm. lata, furfuracea; flores 5-meri, glomerati; pedicelli fructiferi crassi, clavati, usque ad 1.2 cm. longi; sepala asymmetrica, late rotundata, ca. 7 mm. lata, ca. 3.5 mm. longa, emarginata, fimbriata; fructus globosus.

Tree, 6 m. tall, the branchlets thick, furfuraceous; leaves large, petiolate, the thick petioles canaliculate, 1–2 cm. long, furfuraceous; leaf blades firm, coriaceous, oblong-elliptic, up to 28 cm. long, 8.5 cm. wide, the apex acutish, subacuminate, the base decurrent on the petiole, margin entire, brown-furfuraceous beneath, glabrous above, the thick midvein elevated beneath, nearly plane above, the primary lateral veins very slender, inconspicuous; inflorescence large, exceeding the leaves, furfuraceous, bipinnately paniculate; flowers 5-parted, glomerate, borne on thick long club-like pedicels up to 1.2 cm. long; calyx (subtending immature fruit) with firm strongly asymmetric sepals depressed-rounded, twice as wide as long, fimbriate along enclosed hyaline margin, rather thinly punctate with black glands; immature fruits globose.

Panama: Prov. Veraguas, NW of Santa Fe, 4.2 km. from Escuela Agricola Alto de Piedra, Feb. 25, 1975, *S. Mori & J. Kallunki 4830* (LL, holotype), tree, 6 m. tall. Prov. Cocle, El Potrosa, 7 km. N of El Cope, Alto Calvario, circa 900 m., Jan. 15, 1977, *J. P. Folsom 1329* (MO, paratype), tree, 6 m., petals pink, stamens yellow.

Among the species with glomerate flowers, the long clavate thick pedicels of *A. crassipedicellata* feature the taxon from others of this relationship. Its sepals, wider than long and asymmetric, further distinguish it.

Ardisia Crosbyi Lundell, sp. nov. Plate 141.

Frutex; ramuli graciles, rufo-lepidoti; folia petiolata, petiolo lepidoto, 1.5–3 cm. longo; lamina membranacea, pallida, minute punctata, glabrata, lanceolata vel elliptico-lanceolata, 14–18 cm. longa, 5–6.6 cm. lata, apice acuminata, acumine obtusiuscula, basi acuta; inflorescentia terminalis, ca. 6 cm. longa, corymbosa, parce lepidota; pedicelli fructiferi usque ad 1.2 cm. longi; flores 5- vel raro 6-meri; sepala lanceolata, ca. 1.3 mm. longa, acuta, ciliolata, aurantiaco-punctata; fructus globosus.

Shrub, unbranched, 1.5 m. tall, the stems very slender, rufous-lepidote at apex; leaves pallid, paler beneath, with long slender lepidote petioles up to 3 cm. long; leaf blades glabrous, membranaceous, punctate with small glands, mostly lanceolate, up to 18 cm. long, 6.6 cm. wide, the apex acuminate, acumen obtusish, base acute and decurrent on petiole, margin entire, midvein rather slender, equally evident on both surfaces, primary lateral veins slender, 9 or 10 pairs, arcuately ascending; inflorescence a single corymb, terminal, about 6 cm. long including slender peduncle 4 cm. long, sparsely lepidote; pedicels in fruit up to 1.2 cm. long, slender; flowers 5- or rarely 6-parted; sepals lanceolate, about 1.3 mm. long, acute, ciliolate, inconspicuously punctate with small orange glands; immature fruits globose.

Panama: Prov. Colon, on trail at end of Santa Rita Ridge Road, 18–30 km. from Boyd-Roosevelt Hwy., tropical wet forest, 600–800 m. alt., May 30, 1975, *S. Mori & M. Crosby 6423* (LL, holotype), shrub, unbranched, 1.5 m. tall.

With the inflorescence consisting of a single terminal corymb on a long slender peduncle, *A. Crosbyi* is unique. The small lanceolate orange punctate sepals and the long slender petioles are other characteristics of note. It does not appear to be near any other taxon known from Neotropical America.

Ardisia cucullata Lundell, Wrightia 3: 26. 1962. Plate 142.

Mexico: Chiapas, Fraylesca, alt. 2000 m., March 7, 1945, *Eizi Matuda 5201* (LL, holotype), tree, 5 m. high.

Ardisia deminuta Lundell, sp. nov. — Frutex; ramuli graciles, novelli adpresse lepidoti; folia chartacea, subtus novella parce lepidota, supra glabra, petiolata, petiolo 3–3.5 mm. longo, anguste marginato; lamina lanceolata, 5.5–12.5 cm. longa, 2–4.5 cm. lata, apice subabrupte acuminata, basi acuta, margine subintegra; inflorescentia deminuta, terminalis vel lateralis, paniculata, 1.5–3 cm. longa, dense lepidota; flores corymbosi, 5-meri; pedicelli 2–3.5 mm. longi, lepidoti; sepala ovata, ca. 1.4 mm. longa, minute aurantiaco-punctata, apice rotundata, margine hyalina; corolla ca. 6 mm. longa; petala oblongo-elliptica, 2–2.5 mm. lata, basi connata ca. 1.5 mm., symmetrica, aurantiaco-punctata, apice rotundata; stamina 4–4.4 mm. longa; filamenta ca. 1.5 mm. longa; antherae anguste lanceolatae, ca. 3 mm. longae, epunctatae; stylus, ca. 5 mm. longus, epunctatus; ovula parva, 11 or 12, pluriseriata.

Shrub, 2 m. tall, the branchlets slender, rather short, apically densely brown-lepidote with appressed scales; leaves at first lepidote beneath along midvein, otherwise essentially glabrous, veins slender, reticulate beneath, the petioles rather slender, narrowly marginate, up to 3.5 mm. long; leaf blades lanceolate, up to 12.5 cm. long, 4.5 cm. wide, apex acuminate with conspicuous acumen, base acute and decurrent on petiole, the margin obscurely crenulate, subentire; inflorescences very small, paniculate, less than 3 cm. long, densely lepidote; flowers corymbose, 5-parted; pedicels usually short, up to 3.5 mm. long, rather slender, lepidote; sepals thin, ovate, 1.2–1.4 mm. long, minutely orange-punctate, the margin hyaline, apex obtuse-rounded, subentire; corolla up to 6 mm. long; petals oblong-elliptic, up to 2.5 mm. wide, connate at base about 1.5 mm., symmetrical, orange-punctate, rounded-obtuse at apex; stamens

4–4.4 mm. long; filaments attached at middle of corolla tube; anthers linear-lanceolate with rounded short lobes at base, 3 mm. long, dehiscent by two small apical pores, glandless; styles epunctate, slender, about 5 mm. long; ovules very small, 11 or 12, pluriseriate.

Panama: Prov. Panama, along trail between Rio Majo and Quebrada Brava, ca. 2 miles upstream from waterfalls near edge of Bayano Lake, elev. ca. 100 m., May 5, 1976, *Thomas B. Croat 34737* (LL, holotype), shrub 2 m., flowers white; Rio Majo, above first waterfall on steep wooded slopes of narrow valleys, tropical moist forest, elev. ca. 50 m., April 20, 1976, *Croat 34425* (MO, paratype), shrub 2 m.; flowers white.

Referable to the subgenus *Icacorea*, the greatly reduced densely lepidote inflorescences are a characteristic feature of the taxon.

Ardisia erythrocarpa Lundell, Wrightia 2: 59. 1960. Plate 143.

Guatemala: Dept. Peten, San Luis, km. 52 of road south of village, on forest floor in dense shade, July 10, 1959, *C. L. Lundell 16267* (LL, holotype), arborescent shrub, 6 ft. high, fruits depressed-globose, bright red.

Ardisia florulenta Lundell, sp. nov. — Arbor; ramuli crassiusculi, adpresse lepidoti; folia coriacea, petiolata, petiolo marginato, 1–1.4 cm. longo; lamina anguste oblonga vel anguste elliptico-oblonga, 16–25 cm. longa, 4.5–6 cm. lata, apice acuminata, basi attenuata, revoluta, supra glabrata, subtus peradpresse lepidota, margine integra; inflorescentia terminalis, pyramidalis, paniculata, tripinnata, multiflora, sessilia, 25 cm. longa, 30 cm. lata, furfuracea; flores glomerati, 5-meri, parce et minute lepidoti; pedicelli crassi, subnulli vel ad 2 mm. longi; sepala crassa, asymmetrica, late ovata vel ovato-rotundata, ca. 2 mm. longa et lata, parce punctata, ciliata; corolla alba, ca. 5 mm. longa, petala basi connata ca. 1.8 mm., lanceolata, apice asymmetrica, punctata; stamina ca. 5 mm. longa; filamenta gracilis, ca. 2.5 mm. longa; antherae lanceolatae, crassae, ca. 2.4 mm. longae, apiculatae; ovarium glabrum; ovula ca. 23; stylus ca. 4 mm. longus.

Tree, 6 m. tall, the branchlets rather thick, appressed-lepidote with brown scales; leaves rigidly coriaceous, drying brownish, with petioles up to 1.4 cm. long, marginate to base; leaves narrow and long, oblongish, up to 25 cm. long, 6 cm. wide, acuminate at apex, narrowed to base and decurrent on petiole, glabrous above except along the lepidote sulcate midvein, covered beneath with closely appressed scales; inflorescence large, densely flowered, paniculate, up to 25 cm. long, 30 cm. wide at base, sessile, pyramidal, furfuraceous; flowers glomerate, the heads sessile to short stalked, rather sparsely and minutely lepidote, pedicels thick, very short, sometimes up to 2 mm. long; sepals thick, pallid, asymmetric, the enclosed margin wider and fimbriate-ciliate, broadly ovate, mostly about 2 mm. long and wide, inconspicuously punctate with reddish-black glands, the glands dispersed; corolla white, about 5 mm. long including basal tube about 1.8 mm. long; petals lanceolate, asymmetric apically, inconspicuously punctate with reddish glands; stamens about 5 mm. long, the slender filaments as long as the anthers; anthers lanceolate, thick, dehiscent longitudinally, apiculate, with obscure glands dorsally; ovules 23 in placenta dissected, pluriseriate; style about 4 mm. long.

Panama: Prov. Chiriqui, Cerro Pando, on the continental divide and the Panama-Costa Rica border, ca. 16 km. NW of El Hato del Volcan,

alt. 2000–2482 m., July 21, 1975, *S. Mori & A. Bolten 7330* (LL, holotype), tree, 6 m. tall, corolla white.

Related to *A. furfuracea* Standl. of Costa Rica, a species with very coarse furfuraceous covering, smaller flowers and thinner leaves. Both are similar in having filaments and anthers subequal and in the density of their glomerate flowers. In *A. florulenta* the inflorescence greatly exceeds the leaves. Mostly lepidote with small scales, these usually tightly appressed, the new taxon differs markedly in this feature from *A. furfuracea*.

Ardisia Folsomii Lundell, sp. nov. Plate 144.

Frutex; ramuli crassi, furfuracei; folia subsessilis, petiolo basi late marginato; lamina subchartacea, supra glabra, subtus adpresse et parce lepidota, obovata, usque ad 40 cm. longa, 24 cm. lata, apice rotundata vel subabrupte acuta, basi angustata et late marginata, integra; inflorescentia terminalis, rufa, furfuracea, anguste paniculata, usque ad 20 cm. longa, pauciramosa, pedunculata, pedunculo usque ad 11 cm. longo; flores 5-meri, subcorymboso-capitellati; pedicelli 5–7 mm. longi; sepala asymmetrica, late ovata, 2–2.5 mm. longa et lata, punctata, apice rotundata; corolla ca. 4.8 mm. longa; petala elliptica, basi coalita ca. 1.3 mm., asymmetrica, punctata; stamina ca. 2.5 mm. longa; filamenta crassa, ca. 0.8 mm. longa; antherae crassae, lanceolatae, ca. 2.2 mm. longae, apice acutae et rimis brevibus quasi poratim dehiscentes; stylus ca. 3.8 mm. longus, punctatus; ovula 18, pluriseriata; fructus globosus, ca. 7 mm. diam.

Shrub, 1–1.5 m. tall, the branchlets thick, furfuraceous; leaves large, subsessile with the petiole widely marginate to base; leaf blades drying thin, subchartaceous, glabrous above, sparsely lepidote beneath at first with closely appressed scales, obovate, up to 40 cm. long, 24 cm. wide, apex subabruptly acute or broadly rounded, narrowed and widely marginate at base, margin entire; inflorescence terminal, rufous, furfuraceous, narrowly paniculate, up to 20 cm. long with peduncle 11 cm. long; flowers 5-parted, subcorymbose-capitellate; pedicels 5–7 mm. long; sepals asymmetric, broadly ovate, 2–2.5 mm. long and wide, with ear on overlapped edge, variable in size in same flower, punctate almost to edge with rounded and oblongish reddish-black glands, rounded at apex; corolla punctate like the sepals, about 4.8 mm. long; petals elliptic, asymmetric at apex, connate at base about 1.3 mm.; stamens about 2.5 mm. long, the anthers thick, lanceolate, 2.2 mm. long, acute, dehiscent by pores which slit longitudinally; ovary glabrous; ovules 18, minute, pluriseriate; style 3.8 mm. long, punctate; fruits globose, drying about 7 mm. in diameter.

Panama: Prov. Cocle, Atlantic slope NW of El Cope, along Rio San Juan near fork with Rio Tife, on trail from El Cope sawmill, in wet forest, elev. ca. 1200 ft., June 9, 1978, *Barry Hammel 3316* (LL, holotype), suffructicose herb, stem decumbent, 30–40 centimeters, flowers pale burgundy; along road from La Pindeda to El Cope by way of Piedras Gordas, cloud forest, elev. 3000 ft., April 20, 1978, *Hammel 2629* (MO, paratype), shrub, 1.5 m., flowers purple; lumber camp at Alto Calvario, 7 km. N of El Cope, elev. ca. 900 m., Jan 14, 1977, *J. P. Folsom 1308* (MO, paratype), 1 m., fruit turning black.

The large obovate leaves rounded or acute at apex and subsessile, together with the narrow furfuraceous panicle, and sepals rounded and punctate to the very edge are features of this unusual taxon.

Ardisia foveolata Lundell, sp. nov. – Arbor parva; ramuli crassiusculi, novelli adpresse lepidoti; folia coriacea, supra dense et minute foveolata, subsessilifolia, petiolo lepidoto, crasso, marginato, usque ad 6 mm. longo; lamina oblanceolata vel elliptico-lanceolata, 4.5–7.5 cm. longa, 2–3.5 cm. lata, apice subabrupte acuminata, basi acuta, integra, glabrata; inflorescentia terminalis, paniculata, bipinnata, ca. 7 cm. longa, parce lepidota; pedicelli fructiferi graciles, 3.5–5 mm. longi; flores 5-meri, corymbosi; sepala parva, ovata, 0.75–0.90 mm. longa, acutiuscula, aurantiaco-punctata; stylus 3 mm. longus; fructus globosus, 3.5–4 mm. diam.

Tree, 5 m. tall, the branchlets rather slender, with short internodes, apically appressed-lepidote at first, the leaf buds appressed-lepidote; leaves firmly coriaceous, drying blackish and densely foveolate above, paler and brownish beneath, essentially subsessile with the short thick petioles marginate to base; leaf blades mostly oblanceolate, small, up to 7.5 cm. long, 3.5 cm. wide, the slender acumen obtusish, base acute and decurrent, the margin entire, the midvein elevated, the primary lateral veins slender, inconspicuous; inflorescence terminal, essentially glabrous, paniculate, with stout rachis up to 7 cm. long; pedicels of fruits very slender, up to 5 mm. long; flowers 5-parted; sepals small, ovate, less than 1 mm. long, acutish, orange-punctate with rather large conspicuous glands; styles 3 mm. long; fruits small, globose, 3.5–4 mm. in diameter when dry.

Panama: Prov. Veraguas, NW of Santa Fe, 2 km. from Escuela Agricola Alto de Piedra, ridge top cloud forest below summit of Cerro Tute, Mar. 27, 1975, *S. Mori & J. Kallunki 5247* (LL, holotype), tree, 5 m. tall, fruit red.

A. foveolata is related to *A. Maxonii* Standl., *A. rigidifolia* Lundell and *A. Scheryi* Lundell, taxa with small sepals, and coriaceous leaves usually foveolate on upper surface.

The densely and minutely foveolate rigid leaves with subabruptly finger-like acumen, slender and rigid fruiting pedicels up to 5 mm. long, and the very small round fruits are distinctive characteristics of *A. foveolata*. With persistent styles on the fruits only 3 mm. long, the flowers evidently are quite small.

Ardisia geniculata Lundell, Ann. Missouri Bot. Gard. 28: 454. 1941. Plate 145.

Panama: Prov. Chiriqui, vicinity of San Bartolome, Peninsula de Burica, *R. E. Woodson Jr. & R. W. Schery 944* (MICH, holotype), tree, 4–5 m., flowers white.

Ardisia Gentryi Lundell, sp. nov. Plate 146.

Arbor; ramuli crassi, furfuracei; folia petiolata, petiolo crassiusculo, canaliculato, 1.5–2 cm. longo; lamina chartacea, subtus lepidota, supra glabrata, oblongo-elliptica vel oblonga, usque ad 22 cm. longa, 7 cm. lata, apice subabrupte acuminata, basi acuta, margine integra; inflorescentia terminalis, dense furfuracea, paniculata, usque ad 25 cm. longa et lata, pyramidalis; flores 5-meri, capitellati, subsessiles; pedicelli usque ad 1

mm. longi; sepala parva, crassiuscula, nigropunctata, late ovata, ca. 1.4 mm. longa, apice obtuso-rotundata, margine minute erosa, hyalina; ovula numerosa, pluriseriata.

Tree, 10 m. tall, the branchlets thick furfuraceous at first with dark brown scales; leaves large, with thickish canaliculate petioles up to 2 cm. long; leaf blades firmly chartaceous, persistently lepidote beneath, oblong or narrowly elliptic, up to 22 cm. long, 7 cm. wide, apex rather abruptly short acuminate with narrow acumen up to 1 cm. long, base acute and decurrent on petiole, the midvein elevated beneath, shallowly sulcate above, the primary lateral veins slender, 20–24 pairs; inflorescence large, exceeding the leaves, conspicuously furfuraceous, pinnately paniculate, pyramidal, up to 25 cm. long and wide at base (in bud), with thick peduncle and rachis; flowers in small dense heads on short slender stalks; pedicels up to 1 mm. long, tapering into base of calyx, stout, lepidote; sepals small, thickish, broadly ovate, about 1.4 mm. long (boiled), apex obtuse-rounded, the margin hyaline, minutely erose, punctate medially with small blackish rounded dispersed glands; buds ovoid; (corolla and stamens not available); anthers in bud longitudinally dehiscent; ovary glabrous, the minute ovules numerous, pluriseriate.

Colombia: Dept. Choco, north ridge of Alto de Buey, premontane wet forest, east-southwest of El Valle, alt. 500–1150 m., Aug. 8, 1976, *Al Gentry & Mary Fallen 17348* (LL, holotype), tree, 10 m., buds pinkish tan.

The small flowers in heads and large multi-pinnate furfuraceous inflorescences suggest *A. palmana* Donn. Sm. and *A. florulenta* Lundell. The three species belong to the group with glomerate flowers, but they are very distinct taxa. Unfortunately, only flower buds of *A Gentryi* are available.

Ardisia Hagenii Lundell, Wrightia 4: 59. 1968. Plate 147.

Panama: Prov. Chiriqui, Horqueta, cloud forest, alt. 6500 ft., *Christine von Hagen & Wolfgang von Hagen 2008* (MO, holotype), tree, 35 ft. tall, trunk 5 in. diam., wood pink.

Ardisia Hammelii Lundell, sp. nov. Plate 148.

Frutex: ramuli crassi, furfuracei; folia sessilis, supra glabra, subtus peradpresse lepidota; lamina chartacea, oblanceolata, usque ad 45 cm. longa, 15 cm. lata, apice acuminata, basi attenuata, angustata, integra; inflorescentia terminalis, paniculata, usque ad 30 cm. longa, pedunculata, dense furfuracea; pedicelli 3–6 mm. longi; flores 5-meri, subumbellati; sepala crassa, imbricata, asymmetrica, ovato-rotundata, 1.4–1.8 mm. longa, 2–2.4 mm. lata, ciliata, punctata; corolla ca. 6 mm. longa; petala crassa, basi connata ca. 1.6 mm., apice asymmetrica, acuta, elliptica, ad 2.7 mm. lata, punctata; stamina 3 mm. longa; filamenta crassa, ca. 0.8 mm. longa; antherae crassae, lanceolatae, ca. 2.5 mm. longae, apice mucronatae et rimis brevibus quasi poratim dehiscentes, basi subsagittatae; ovarium ovoideum, glabrum; stylus 2.5–3.5 mm. longus, punctatus; ovula 14–17, pluriseriata.

Shrub, 3 m. tall, the branchlets thick, apparently furfuraceous at first; leaves very large, sessile, cuneate-narrowed from middle to base, about 2 cm. wide at base and probably rounded, glabrous above, lepidote beneath with tightly appressed scales; leaf blades rather thin, chartaceous, oblanceolate, widest above middle, up to 45 cm. long, 15 cm. wide, apex

acuminate, margin entire, paler beneath; inflorescence terminal, paniculate, up to 30 cm. long, the branches at base up to 6 cm. long, the bracteate stout peduncle about 11 cm. long, densely furfuraceous with dark brown scales; slender pedicels of the glomerate flowers up to 6 mm. long; flowers 5-parted; sepals rigid, imbricate, those with overlapped edge asymmetric, broadly ovate-orbicular, up to 1.8 mm. long, 2.4 mm. wide, ciliate, punctate with large dispersed red-black glands; corolla about 6 mm. long; petals thick, connate at base about 1.6 mm., apex asymmetric and acute, elliptic, up to 2.7 mm. wide, punctate with rather large dispersed mostly rounded reddish-black glands; stamens fully 3 mm. long; filaments thick, about 0.8 mm. long, attached at apex of corolla tube; anthers thick, epunctate, lanceolate, about 2.5 mm. long, apex mucronate and cleft at apex with two pores, the basal lobes short, subsagittate; ovary ovoid, glabrous; style slender, 2.5–3.5 mm. long, apical two-thirds punctate with small glands; ovules small, 14–17, pluriseriate.

Panama: Prov. Colon, south approach of Cerro Bruja from Rio Escandaloso, alt. 2600 ft., May 18, 1978, *Barry Hammel 3141* (MO, holotype; LL, fragment), shrub, 3 m. tall, flowers pale purple.

In the group with glomerate flowers, this taxon is notable for its large essentially cuneate sessile leaves, slender-pedicellate small flowers, thick asymmetric ciliate sepals, and thick petals punctate with large dispersed reddish-black glands. The stamens, borne at apex of corolla tube, have unusually short thick filaments.

Ardisia Hintonii Lundell, Wrightia 5: 61. 1974. Plate 149.

Mexico: Michoacan, Dist. Coalcoman, San Jose, in woods, alt. 900 m., June 12, 1939, *Geo. B. Hinton et al. 13794* (LL, holotype), tree, 6 m., fls. white.

Ardisia hirtella Lundell, Wrightia 3: 98. 1964. Plate 150.

Belize (British Honduras): El Cayo District, Retiro, in cohune ridge, June 30, 1936, *C. L. Lundell 6302* (LL, holotype), shrub or treelet, height 3.5 m., diam. 3 cm., fls. pinkish.

Ardisia hyalina Lundell, Wrightia 3: 99. 1964. Plate 151.

Mexico: San Luis Potosi, vicinity of Xilitla, Cerro Miramar, in subtropical forest with high precipitation, elev. 4400 ft., July 15, 1947, *Robert J. Newman 19* (US, holotype), a small tree about 13 ft. tall.

Ardisia ibaguensis Lundell, Wrightia 3: 197. 1966. Plate 152.

Colombia: Ibague, 700–800 m. alt., Aug. 2, 1952, *M. Koie 5138* (C, holotype).

Ardisia limonensis Lundell, sp. nov. Plate 153.

Arbor; ramuli crassi, rufo-stellato-tomentosi; folia sessilis, oblanceolata, usque ad 45 cm. longa, 13 cm. lata, apice acuminata, basi angusta, emarginata; lamina chartacea, utrinque minute rufo-stellato-pubescentia, minute crenulata; inflorescentia longipedunculata, anguste paniculata, ca. 16 cm. longa, rufo-tomentella; pedicelli graciles, 5–7.5 mm. longi; flores 5-meri, corymbosi; sepala parva, elliptica vel ovato-elliptica, ca. 1.5 mm. longa, apice rotundata, parce nigropunctata; ovarium glabrum, minute punctatum; ovula 11–13, pluriseriata.

Woody, probably a tree, the branchlets thick, at first tomentose with

dark red stellate and branched hairs; leaves very large, sessile, with elevated midvein beneath, pubescent like branchlets, the midvein narrowly impressed above; leaf blades rather thin, chartaceous, oblanceolate, up to 45 cm. long, 13 cm. wide, widest above middle and tapering to apex and base, apex acuminate, base narrowed and rounded, emarginate, the basal lobes rounded, the margin inconspicuously but regularly crenulate, the primary lateral veins slender, 25–30 pairs, slightly elevated beneath, both surfaces minutely stellate pubescent with sessile hairs; inflorescence tomentose with small red hairs like the stems, narrowly paniculate, up to 16 cm. long with the lower branches about 3 cm. long, the upper less than 1 cm. long, rather slender; pedicels slender, 5–7.5 mm. long (post anthesis); flowers 5-parted, corymbose; sepals thickish, small, free, elliptic or ovate-elliptic, about 1.5 mm. long (boiled), rounded at apex, the margin with reddish uneven hair-like extrusions, sparsely punctate over most of surface with mostly small rounded red-black glands; ovary ellipsoid, glabrous, densely punctate with small red glands; ovules 11–13, pluriseriate, exceptionally large.

Costa Rica: Prov. Limon, 29 air km. W of Tortuguero, south border of Hacienda La Suerte, E of sentry gate, primary rainforest, area of low hills and mounds, elev. 40 m., March 15, 1978, *Christopher Davidson 7009* (MO, holotype; LL, fragment), fruits purple-black, pedicels red.

A. limonensis is an unusual species of uncertain affinity with a peculiar covering of branched or stellate hairs, the branches of hairs often flattened and scaly in appearance. No flowers are available. The very large thin leaves, the inflorescence apparently lateral, as well as the peculiar red indument, set the taxon apart.

Ardisia loretensis Lundell, sp. nov. — Frutex; ramuli rufo-furfuracei, graciles; folia petiolata, petiolo rufo-furfuraceo, ad 7 mm. longo; lamina membranacea, supra glabra, subtus lepidota, oblanceolata, 8–17 cm. longa, 3–5 cm. lata, apice acuminata, basi cuneata, margine serrulata; inflorescentia terminalis, gracilis, paniculata, pauciflora, ca. 7.5 cm. longa, furfuracea; flores 5-meri; pedicelli fructiferi 6–10 mm. longi, graciles; sepala 5, imbricata, anguste lanceolata, 2 mm. longa, acuminata, nigro-punctata; fructus subglobosus, ca. 6 mm. diam.

Subshrub 0.5 m. tall, the branchlets slender, with sordid reddish matted cover of loose scales and stalked stellate hairs, the hairs often dendroid; leaves short petiolate, the petioles scurfy like the branchlets, up to 7 mm. long; leaf blades thin, membranaceous, paler beneath and lepidote with small dispersed appressed scales, glabrous above, sparsely black-punctate, oblanceolate, up to 17 cm. long, 5 cm. wide, long acuminate at apex, cuneate at base, margin conspicuously serrulate, the midvein elevated and furfuraceous beneath, narrowly impressed above; inflorescence terminal, paniculate, very slender, with only 2 or 3 short branches, few-flowered, up to 7.5 cm. long, furfuraceous; pedicels of fruits nearly glabrous, slender, 6–10 mm. long; flowers 5-parted; sepals 5, imbricate at base, almost free, narrowly triangular-lanceolate, attenuate to the acuminate apex, fully 2 mm. long, margin scurfy, black-punctate with large glands; dry fruits subglobose, about 6 mm. in diam.

Peru: Loreto, Prov. Maynas, near Brilla Nueva, Borro Indian village on upper Rio Yaguasyacu, tributary of Rio Ampiyacu, mature upland

forest, Nov. 8, 1977, *A. Gentry & J. Revilla 20459* (MO, holotype), subshrub, 9.5 m., fruits green, turning reddish.

In the absence of flowers the relationship of *A. loretensis* is not apparent. Its indumentum and leaf form are distinctive.

Ardisia Maasolae Lundell, sp. nov. Plate 154.

Arbor parva; ramuli crassiusculi et graciles, novelli minute lepidoti; folia glabrata, parva, coriacea, petiolata, petiolo crasso, marginato, 4–7 mm. longo; lamina obovata vel elliptica, 4–7.5 cm. longa, 1.7–3.2 cm. lata, apice subacuminata, obtusiuscula, basi acuta; inflorescentia terminalis, 3-pinnato-paniculata, parce lepidota, usque ad 9 cm. longa; pedicelli graciles, 5–7 mm. longi; flores corymbosi, 5-meri; sepala anguste lanceolata, usque ad 2.2 mm. longa, obtusa, aurantiaco-punctata, margine integra; corolla 5.5 mm. longa; petala oblongo-elliptica, ca. 2.4 mm. lata, aurantiaco-punctata, subsymmetrica, basi connata ca. 1.2 mm.; stamina 4–4.5 mm. longa; filamenta ca. 1.6 mm. longa; antherae anguste lanceolatae, 3–3.4 mm. longae, epunctatae; ovarium globosum, apice minute lepidotum; stylus 4 mm. longus, punctatus; ovula parva, 29 vel 30, pluriseriata.

Tree, 7 m. tall, the branchlets rather slender with short internodes, minutely reddish-lepidote at first; leaves small, crowded at tips of branchlets, rigidly coriaceous, with stout marginate petioles up to 7 mm. long; leaf blades glabrate, obovate or elliptic, up to 7.5 cm. long, 3.2 cm. wide, the apex with short broad obtusish acumen, base acute and decurrent on petiole; inflorescence terminal, rather laxly tripinnately paniculate, sparsely lepidote except at base, less than 10 cm. long with slender branchlets; pedicels slender, up to 7 mm. long; flowers corymbose, 5-parted; sepals narrowly lanceolate, up to 2.2 mm. long (boiled), obtuse, punctate rather densely with large rounded orange glands, margin entire; corolla 5.5 mm. long; petals thin, narrowly elliptic, subsymmetric, orange-punctate, with group of small glands at apex, connate at base ca. 1.2 mm.; stamens 4–4.5 mm. long; filaments attached at base of tube, about 1.6 mm. long; anthers linear-lanceolate, up to 3.4 mm. long, with small basal lobes, dehiscent by two small apical pores, not punctate; ovary globose, minutely lepidote above middle, the style punctate, 4 mm. long; ovules 29 or 30, very small, pluriseriate.

Panama: Prov. Panama, Cerro Azul, alt. 1050 m., Mar. 21, 1972, *Juha Maasola 6* (MO, holotype; LL, fragment), 7 m. tall, 6 cm. diam.

A. Maasolae is very near *A. rigidifolia* Lundell. In *A. Maasolae* the lanceolate slender sepals up to 2.2 mm. long and globose lepidote ovary with 29 or 30 minute ovules distinguish the species from *A. rigidifolia* which has ovate thinner sepals less than 2 mm. long and ovoid-ellipsoid glabrous ovary with 17 to 20 ovules. Both taxa have very similar anthers, and they are referable to the subgenus *Icacorea*. The lepidote ovary in *A. Maasolae* is unusual in this genus.

Ardisia macrostachya Lundell, sp. nov. — Frutex; rami crassi, furfuracei; folia magna, sessilis; lamina chartacea, oblanceolato-elliptica, ca. 60 cm. longa, 19 cm. lata, basi angustata, margine integra, subtus peradpresse lepidota, supra glabrata; inflorescentia terminalis, macrostachya, crassa, tripinnata, paniculata, pyramidalis, ca. 30 cm. longa,

basi ca. 30 cm. lata, pedunculata, furfuracea; flores 5-meri, glomerati; pedicelli crassi, 3–4 mm. longi; sepala crassa, hyalina, late ovata vel ovato-rotundata, 3.5–4 mm. longa, 4–5 mm. lata, parce lepidota, parce nigropunctata, subsymmetrica, erosa; ovarium glabrum; ovula ca. 20.

Shrub, 2–3 m. tall, the stems thick, furfuraceous; leaves chartaceous, very large, up to 60 cm. long, 19 cm. wide, sessile, broadly oblanceolate, narrowed to the base, glabrate above, appressed-lepidote beneath, paler and drying brownish on lower surface, margin entire, midvein thick and elevated beneath, the primary veins slender, numerous, not forming a submarginal vein; inflorescence terminal, probably the largest in genus, thick, tripinnately paniculate, pyramidal with rather remote thick primary branches, about 30 cm. high and equally as wide at base, with thick peduncle about 5 cm. long, furfuraceous including pedicels; flowers 5-parted, glomerate, the heads sessile to pedunculate; pedicels thick, up to 4 mm. long; sepals thick with lepidote erose hyaline margins, broadly ovate-rounded or depressed-ovate, up to 4 mm. long, 5 mm. wide, subsymmetric to asymmetric, black-punctate with a few rather conspicuous glands; ovary glabrous; ovules 20 in placenta dissected.

Panama: Prov. Panama, Gorgas Memorial Labs yellow fever research camp, "Campamento Quatro", 5–10 km. NE of Altos de Pacora, on ridge top, alt. ca. 600 m., Nov. 21–24, 1974, *S. Mori & J. Kallunki 3417* (MO, holotype), common shrub, 2–3 m. tall.

Belonging to the species group with very large leaves and glomerate pedicellate flowers, *A. macrostachya* is nearest *A. megistophylla* Lundell. The latter has petiolate, not sessile, leaves, and much smaller sepals which are subsymmetric as in *A. macrostachya*.

When the glomerate flowered species have sessile flowers with crowding in the heads the sepals are strongly asymmetric and unequal in size with the covered margin fimbriate. In taxa with glomerate flowers pedicellate and not crowded the sepals are nearly symmetric and usually longer than wide.

Ardisia martinensis Lundell, sp. nov. — Frutex; ramuli novelli peradpresse lepidoti, graciles; folia petiolata, petiolo 5–8 mm. longo, anguste marginato, lepidoto; lamina membranacea, supra glabra, subtus parce peradpresse lepidota, elliptica, 6–12 cm. longa, 3–5 cm. lata, apice subabrupte acuminata, basi acuta, margine semicrenulata; inflorescentia terminalis, paniculata, ad 7 cm. longa, parce lepidota; flores 4- vel 5-meri, corymbosi; pedicelli graciles, ad 7 mm. longi; calyx ad 2.5 mm. longus; sepala imbricata, ovata, 1.5–2 mm. longa, apice obtuso-rotundata, margine minute erosa vel eroso-ciliolata, minute punctata; corolla 5.5 mm. longa; petala basi coalita ca. 1.5 mm., subsymmetrica, lanceolato-oblonga, apice rotundata, minute punctata; stamina ca. 3.5 mm. longa; filamenta ca. 1.5 mm. longa; antherae lanceolatae, ca. 2.6 mm. longae, epunctatae, basi subhastatae; ovarium ovoideum; stylus ca. 4.5 mm. longus; ovula 14, pluriseriata.

Shrub, 1 m. tall, the branchlets terete, slender, at first tightly appressed-lepidote; leaves with rather slender narrowly marginate petioles 5–8 mm. long, lepidote; leaf blades membranaceous, glabrous above, rather sparsely appressed-lepidote beneath, elliptic, 6–12 cm. long, 3–5 mm. wide, apex subabruptly acuminate, base acute and decurrent on petiole,

margin semicrenulate, midvein elevated beneath, nearly plane above, the primary lateral veins slender but elevated slightly, reticulation rather obscure, punctate with dispersed rounded blackish glands; inflorescence terminal, paniculate, up to 7 cm. long, including short peduncle, rather sparsely lepidote; flowers 4- or 5-parted, mostly 5-parted, corymbose; pedicels slender, up to 7 mm. long; calyx up to 2.5 mm. long; sepals imbricate, ovate, 1.5–2 mm. long, the larger in 4-parted flowers, margin minutely erose or erose-ciliolate, punctate with numerous small reddish-black dispersed glands; corolla 5.5 mm. long; petals united about 1.5 mm. at base, subsymmetric, lanceolate-oblong, with rounded apex, minutely punctate and with few short medial lines; stamens about 3.5 mm. long, attached near base of corolla tube; filaments rather stout, about 1.5 mm. long; anthers narrowly lanceolate, about 2.6 mm. long, dehiscent by two small apical pores, concolorous, epunctate, shallowly subhastate at base; ovary ovoid; style slender, epunctate, about 4.5 mm. long; ovules 14, pluriseriate.

Peru: Dept. San Martin, Prov. Mariscal Caceres, Tocache Nuevo, quebrada de Cachiyacu de Lopuna, Carretera, a Progreso, en bosque alto, elev. 500–850 m., July 22, 1974, *Jose Schunke Vigo 7670* (LL, holotype), arbusto de 1 metro.

Referable to the subgenus *Icacorea*, *A. martinensis* is nearest *A. guianensis* (Aubl.) Mez. From that species the larger sepals, smaller lanceolate anthers not linear and blackish, terminal inflorescences, and flowers mostly 5-parted are some of the differences of significance. This is a group of taxa in which there are a number of closely related species difficult to characterize.

Ardisia matagalpana Lundell, Wrightia 4: 61. 1968. Plate 155.

Nicaragua: Dept. Matagalpa, road to La Fundadora, cloud forest area north of Sta. Maria de Ostuma, Cordillera Central de Nicaragua, alt. 1300–1500 m., Feb. 1963, *Louis O. Williams et al. 24874* (F, holotype), flowers white, tree 4–6 m. tall.

Ardisia Maxonii Standl., Journ. Wash. Acad. Sci. 17: 522. 1927. Plate 156.

Panama: Prov. Chiriqui, between the Rio Ladrillo and Los Seguas Camp, south slope of Cerro de la Horqueta, 1200–1700 m., March 17–19, 1911, *William R. Maxon 5402* (US, holotype), slender tree, 5 m. high.

Ardisia megistophylla Lundell, Wrightia 4: 147. 1970. Plate 157.

Colombia: Dept. Choco, Costa del Pacifico, ensenada de Utria, en selva, June 5, 1950, *A. Fernandez 251* (US, holotype), arbusto de 2 m., fruto vino tinto.

Ardisia microcalyx Lundell, Wrightia 4: 46. 1968. Plate 158.

Panama: Prov. Chiriqui, vicinity of El Boquete, 900 m., April 24, 1935, *Paul H. Allen 1013* (MO, holotype), tree, 10 m., flowers salmon buff.

Ardisia minima Lundell, sp. nov. Plate 159.

Frutex; ramuli novelli peradpresse lepidoti; folia parva, perpunctata, petiolata, petiolo marginato, 4–8 mm. longo, peradpresse lepidoto; lamina chartacea, oblanceolata vel elliptico-oblanceolata, 4.5–10 cm. longa, 1.5–3.5 cm. lata, apice subabrupte acuminata, basi acuta, utrinque venosis-

sima; inflorescentia terminalis, minima, paniculata, usque ad 2 cm. longa, parce lepidota, pauciflora; flores corymbosi; pedicelli 2–4 mm. longi, glabri; sepala 5, late ovata, ca. 1.4 mm. longa, pellucido-punctata, ciliolata; petala lanceolata, pellucido-punctata; antherae crassae, punctatae, lanceolatae; ovula 5.

Shrub, 1.5 m. tall, rather intricately branched, the branchlets slender, at first appressed-lepidote with minute dark brown scales; leaves densely and conspicuously punctate, with lepidote marginate petioles up to 8 mm. long, mostly shorter; leaf blades chartaceous, paler beneath, glabrous except along the lepidote midvein beneath, mostly oblanceolate, up to 10 cm. long, 3.5 cm. wide, subabruptly short acuminate at apex, acute and decurrent at base, finely venose on both surfaces, with essentially entire margin; inflorescence terminal, greatly reduced, in bud less than 2 cm. long, paniculate or reduced to a single peduculate corymb, essentially glabrous except for lepidote basal section; flowers (in bud) corymbose, with thick pedicels up to 4 mm. long; sepals 5, imbricate, broadly ovate, about 1.4 mm. long, pellucid-punctate, ciliolate; corolla (in bud) glabrous, pellucid-punctate, the petals lanceolate; stamens apparently subsessile, the anthers thick, punctate dorsally; ovary glabrous; ovules apparently few, 5 in bud dissected.

Panama: Prov. Cocle, La Mesa, above El Valle de Anton, ca. 2 km. W of Cerro Pilon on slopes of steep knife-like ridge, cloud forest, elev. 900–930 m., July 22, 1976, *Thomas B. Croat 37461* (MO, holotype; LL, fragment), shrub 1.5 m., flowers pinkish in bud.

The greatly reduced inflorescence (with only flower buds) is inadequate for description, but a very distinct taxon is represented and I name it in the hope that future collectors will find it in flower and fruit. The small inflorescences could be easily overlooked in the rather dense terminal foliage. Other features to be noted are the densely punctate and finely reticulate leaf blades lepidote beneath along midvein.

Ardisia Oerstediana Lundell, sp. nov. Plate 160.

Frutex; ramuli novelli minute et peradpresse lepidoti, glabrati; folia glabra, parce punctata, petiolata, petiolo 4–8 mm. longo; lamina membranacea, oblanceolata vel oblanceolato-elliptica, 10–18 cm. longa, 3–6.5 cm. lata, apice subabrupte acuminata, basi acuta, integra; inflorescentia axillaris et terminalis, glabra, paniculata, 5–12 cm. longa et lata, multiflora; flores 5-meri, glabri, corymbosi; pedicelli 2.5–6 mm. longi; sepala parva, late ovata, ca. 1.2 mm. longa, apice rotundata, parce punctata; petala lanceolato-elliptica, ca. 5 mm. longa, basi connata ca. 1 mm., parce punctata, apice rotundata; stamina ca. 3.5 mm. longa; ovarium glabrum; ovula parva, 28, pluriseriata; stylus ca. 5 mm. longus.

Shrub, 3 m. tall, the branchlets slender, obscurely and appressed-lepidote at apex, otherwise glabrous; leaves with short marginate petioles up to 8 mm. long; leaf blades thin, paler peneath, not conspicuously punctate, oblanceolate or oblanceolate-elliptic, up to 18 cm. long, 6.5 cm. wide, mostly smaller, apex subacuminate, base acutish and decurrent on petiole, margin essentially entire, the midvein nearly plane above, elevated beneath, the primary lateral veins slender but conspicuous beneath, inconspicuous above; inflorescences glabrous, axillary and terminal, the panicles sessile or short pedunculate, tripinnate with slender rigid

rachis and branches, multiflowered, the glabrous flowers corymbose, with straight slender pedicels 2.5–6 mm. long; sepals small, broadly ovate, rounded at apex, about 1.2 mm. long, thin, sparsely punctate; petals thin, lanceolate-elliptic, scarcely 5 mm. long, united about 1 mm. at base, rounded at apex; stamens about 3.5 mm. long, the slender filaments attached in corolla tube, about equalling the lanceolate epunctate anthers, the anthers with apical pores, apiculate; ovary glabrous with slender style about 5 mm. long; ovules in dissected flower very small, 28, pluriseriate.

Panama: Prov. Veraguas, in primary forest, 0.6 mile beyond Escuela Agricola Alto Piedra, elev. 730 m., April 4, 1976, *Thomas B. Croat & J. P. Folsom 34055* (LL, holotype), *34037* (LL, paratype), shrub, 3 m. tall, flowers white.

Similar in appearance and apparently closely related to *A. nigropunctata* Oerst., the species notably differs in being inconspicuously punctate, the black glands in all parts of *A. nigropunctata* being elevated and obvious to the naked eye. With all parts except the leaf buds and tip of branchlets glabrous, and with smaller flower parts, anthers epunctate, and more numerous ovules the distinctness of *A. Oerstediana* is obvious.

I dedicate the species to A. S. Oersted, one of the pioneer workers on the Neotropical flora who made notable discoveries in the Myrsinaceae.

Ardisia ometepensis Lundell, sp. nov.— Arbor parva; ramuli crassi, novelli lepidoti; folia subsessilis, petiolo crasso, late marginato, 3–10 mm. longo; lamina chartacea, supra glabra, subtus adpresse lepidota, oblanceolata vel oblanceolato-elliptica, 12–23 cm. longa, 4.5–8.5 cm. lata, apice ut videtur acuminata, basi acuta, integra; inflorescentia terminalis, macrostachya, subsessilis, late paniculata, ad 27 cm. alta, pyramidalis, multiflora, adpresse lepidota; flores 5-meri, subglomerati vel racemosi; pedicelli crassi, 1–1.5 mm. longi; sepala asymmetrica, ovata vel ovato-rotundata, ad 1.4 mm. longa, nigropunctata, fimbriata; ovarium dense punctatum; stylus ca. 3.7 mm. longus; ovula 19–26, pluriseriata.

Tree, 5 m. tall, the branchlets thick, lepidote at first, glabrate; leaves large, with thick broadly marginate petioles up to 1 cm. long, appearing subsessile; leaf blades chartaceous, glabrous above, paler and appressed-lepidote on lower surface, oblanceolate or oblanceolate-elliptic, 12–23 cm. long, 4.5–8.5 cm. wide, apex probably acuminate, base narrowed and decurrent on the petiole, margin entire; inflorescence large, terminal, 4-pinnately paniculate, pyramidal, up to 27 cm. high, with short peduncle, the lower branches in axils of reduced leaves, multiflowered, appressed-lepidote; flowers 5-parted, subglomerate or racemose; pedicels thick but distinct from calyx, 1–1.5 mm. long; sepals imbricate, spreading, unequal, asymmetric, ovate or rounded-ovate, up to 1.4 mm. long, erose, fimbriate on overlapped margin, punctate with scattered rather small blackish glands; ovary and young fruits densely punctate with small elevated glands; style persistent, slender, about 3.7 mm. long (indicating corolla about 5 mm. long); ovules 19–26, pluriseriate.

Nicaragua: Dept. Rivas, Isla Ometepe, Lago de Nicaragua, Volcan Maderas, north slope, elfin forest, on wind-beaten ridge near summit, elev. 1200 m., Feb. 24, 1978, *David Neill & Paul C. Vinelli 3298* (MO,

holotype), tree 5 m., flowers white.

The taxon appears similar to *A. palmana* Donn. Sm., but differs in ovule count, appressed-lepidote indument, and in the characteristics of its pedicels and calyx.

Stevens 6509 (MO) from the same locality is referable here.

Ardisia pichinchana Lundell, sp. nov. — Arbor parva; ramuli graciles, glabrati; folia petiolis infra 2 cm. longis, canaliculatis, in parte superiore lamina decurrente dilatatis stipitata; lamina membranacea, subtus pallida, minute et parce lepidota, elliptica vel elliptico-oblanceolata, ad 17 cm. longa, 6.3 cm. lata, apice abrupte acuminata, basi acuta, margine subcrenulata; inflorescentia terminalis, paniculata, lepidota, ad 8.5 cm. longa; flores 5-meri, subcorymboso-racemosi; pedicelli ca. 1 mm. longi; sepala ovato-elliptica, ca. 1.5 mm. longa, parce punctata, margine minute ciliolata; fructibus globosus, ca. 6 mm. diam.

Small tree 3.5 m. tall, the branchlets rather slender, evidently lepidote at first apically, glabrous early; leaves with slender narrowly marginate petioles up to 2 cm. long; leaf blades membranaceous, drying greenish, paler beneath, minutely lepidote beneath with dispersed scales, elliptic or elliptic-oblanceolate, up to 17 cm. long, 6.3 cm. wide, apex subabruptly acuminate, base narrowed and decurrent on petiole, the margin subcrenulate above middle of leaf, the primary lateral veins about 13 pairs, slender but elevated and conspicuous beneath, united into vein 3–4 mm. from margin, reticulation obscure; inflorescence terminal, paniculate, lepidote, up to 8.5 cm. long, the basal branches about 3 cm. long; flowers 5-parted, subcorymbose-racemose; fruiting pedicels about 1 mm. long; sepals ovate-elliptic, about 1.5 mm. long, thin, inconspicuously punctate, the rounded margin minutely ciliolate; fruits small, globose.

Ecuador: Prov. Pichincha, Canton Sto. Domingo, Centinela, 12 km. E of Patricia Pilar, elev. 600 m., along path on ridge line, Aug. 23, 1978, *C. H. Dodson, T. Dodson & A. Embree 7207* (MO, holotype), small tree 3.5 m. tall, fruits red, uncommon.

The specimen is poor, but this very distinct species should be easy to recognize. The conspicuous primary lateral veins united rather remotely from leaf margin and subcrenulate margin are noteworthy. In the dried state the leaves are pallid beneath, lepidote, and appearing epunctate. The fruiting material is scanty, but the pedicels are short and the sepals are small and thin. The relationship may be with *A. albovirens* Mez and *A. nigrovirens* Macbr. of Peru, both glabrous taxa with altogether different leaf venation.

Ardisia pilonensis Lundell, sp. nov. — Frutex; ramuli crassi, adpresse furfuracei; folia crassa, coriacea, petiolata, petiolo 5–7 mm. longo, crassiusculo, adpresse furfuraceo; lamina elliptica vel obovato-elliptica, apice breviter acuminata, acumine obtusiuscula vel acuta, supra glabra, subtus adpresse lepidoto-furfuracea, margine integra; inflorescentia terminalis, furfuracea, paniculata, usque ad 12 cm. longa, crassa; flores 5-meri, glomerati; pedicelli subnulli, crassi, 1.5–2 mm. longi; sepala asymmetrica, late ovata, usque ad 4 mm. lata, 3 mm. longa, apice rotundata, margine ciliata, parce nigropunctata; fructus globosus, ca. 7 mm. diam.

Shrub, 3.5 m. tall, the branchlets thick, appressed-furfuraceous, drying

brown; leaves thick with fine venation rather obscure, petiolate, the petioles stout, up to 7 mm. long, appressed-furfuraceous; leaf blades elliptic or obovate-elliptic, 6–9 cm. long, 3–4 cm. wide, apex short acuminate, obtusish or acutish, base acute, sometimes revolute, decurrent on the petiole, glabrous above, appressed lepidote-furfuraceous beneath, the midvein elevated beneath, nearly plane above; inflorescence terminal, subsessile, paniculate, up to 12 cm. long in fruit, the basal branches elongate, those above base short and spur-like, thick, furfuraceous; flowers 5-parted, tightly glomerate; pedicels of fruits thick, up to 2 mm. long, much thicker than long; sepals rather thin, asymmetric, broadly ovate, up to 4 mm. wide, 3 mm. long below fruits, rounded, the margin of the inner side ciliate and thinner, punctate rather sparingly with red and black glands; fruits globose, purple when ripe, about 7 mm. in diameter.

Panama: Prov. Cocle, La Mesa, above El Valle de Anton, ca. 2 km. W of Cerro Pilon on slopes of steep knife-like ridge, cloud forest, elev. 900–930 m., July 22, 1976, *Thomas B. Croat 37431* (MO, holotype), shrub 3.5 m., leaves thick, fruits red to purple.

The relationship of *A. pilonensis* appears to be with *A. conglomerata* Lundell, a cloud forest species from the Santa Fe area in the Province of Veraguas. The smaller leaves, openly branched larger inflorescences, and much larger sepals up to 4 mm. wide and 3 mm. long well-mark *A. pilonensis*. There appear to be a few stalked hairs on the furfuraceous stems of *A. pilonensis* but no rufous-tomentum as in *A. conglomerata*.

Ardisia pluriflora Lundell, sp. nov. Plate 161.

Frutex; ramuli graciles, minute lepidoti, glabrati; folia chartacea, supra glabra, subtus novella minute lepidota, petiolata, petiolo 8–11 mm. longo, canaliculato; lamina anguste elliptico-lanceolata vel lanceolata, 7.5–11 cm. longa, 2–3.7 cm. lata, apice subabrupte acuminata, basi acutiuscula, subintegra; inflorescentia terminalis, gracilis, paniculata, multiflora, parce lepidota; flores 5-meri, subcorymboso-racemosi; pedicelli graciles, 3–4 mm. longi; calyx ca. 2 mm. longus; sepala ovata, 1.3–1.5 mm. longa, apice late obtusa vel rotundata, aurantiaco-punctata; corolla ca. 4.5 mm. longa; petala elliptico-lanceolata, basi coalita 1 mm., apice asymmetrica, aurantiaco-punctata; stamina ca. 3.4 mm. longa; filamenta ca. 1.75 mm. longa; antherae anguste lanceolatae, 1.8–2 mm. longae, epunctatae, apice obtusae, minute emarginatae; ovarium ellipsoideum; stylus punctatus, 3.6–4 mm. longus; ovula 20, parva, pluriseriata.

Shrub, 3 m. tall, the branchlets slender, minutely lepidote apically at first; leaves chartaceous, drying blackish, paler beneath, at first minutely lepidote beneath, glabrous otherwise, the petioles slender, canaliculate, up to 11 mm. long; leaf blades narrowly elliptic-lanceolate or lanceolate, up to 11 cm. long, 3.7 cm. wide, apex subabruptly acuminate, the acumen elongate, obtusish, base acutish and decurrent on petiole, the margin essentially entire; inflorescence terminal, 3-pinnately paniculate with slender rachis and branches, very sparsely lepidote, appearing to be glabrous, multiflowered; flowers 5-parted, corymbose, becoming subcorymbose-racemose after anthesis; pedicels slender, 3–4 mm. long; sepals ovate, 1.3–1.5 mm. long (boiled), punctate with numerous rounded bright orange glands, obtuse-rounded at apex, minutely

erose; corolla about 4.5 mm. long, orange-punctate; petals elliptic-lanceolate, with tube 1 mm. long, the apex asymmetrical; stamens about 3.4 mm. long, inserted above base of corolla tube; filaments about 1.75 mm. long; anthers linear-lanceolate, up to 2 mm. long, dehiscent with two apical pores, obtuse and emarginate at apex, shallowly lobed at base, epunctate; ovary ellipsoid; style punctate, up to 4 mm. long; ovules 20, small, pluriseriate.

Panama: Prov. Chiriqui, camino hacia la finca Landau, NE del campamento de Fortuna (Hornito), sitio de presa, elev. 1100 m., Aug. 13, 1976, *M. D. Correa A., R. Dressler, C. Garibaldi 2326* (MO, holotype), arbusto 3 metros, flores blancas-rosadas.

In the subgenus *Icacorea*, *A. pluriflora* probably is nearest *A. microcalyx* Lundell.

Ardisia Proctori Lundell, Wrightia 4: 64. 1968. Plate 162.

Nicaragua: Dept. Bluefields, primary rain forest, ca. 5 km. NE of Rama, alt. sea-level to 150 m., Rio Escondido, April 4, 1966, *George R. Proctor, Gayle C. Jones & Lynden Facey 27313* (LL, holotype), tree 8 m., fruits green.

Ardisia retusa Lundell, sp. nov. Plate 163.

Frutex; ramuli graciles, adpresse furfuracei; folia perpunctata, petiolata, petiolo canaliculato, 5–8 mm. longo, subtus adpresse furfuraceo; lamina membranacea vel subchartacea, oblongo-lanceolata vel oblanceolata, 10–16 cm. longa, 3–6 cm. lata, apice acuminata, basi acuta, supra glabra, subtus glabrata, integra, reticulato-venosa; inflorescentia terminalis, paniculata, ad 12 cm. longa, lepidota; flores 5-meri, subcorymbosi; pedicelli graciles, ad 1.5 cm. longi; calyx ca. 3.5 mm. longus; sepala subcoriacea, imbricata, late rotundata, ad 2.5 mm. longa, 3 mm. lata, asymmetrica, apice rotundata, retusa, margine scariosa ciliataque; corolla ca. 8 mm. longa; petala basi coalita ca. 2 mm., apice asymmetrica; stamina ca. 5 mm. longa; filamenta crassa, ca. 1.3 mm. longa; antherae oblongo-lanceolatae, crassae, ca. 4 mm. longae, apiculatae; ovarium oblongo-lanceolatum, ca. 2.8 mm. longum; stylus ca. 4.5 mm. longus; ovula 16–19, pluriseriata.

Shrub 2.5 m. tall, the branchlets slender, furfuraceous with appressed scales; leaves densely black-punctate with small glands, petiolate, the petioles canaliculate, up to 8 mm. long, appressed-furfuraceous beneath; leaf blades membranaceous or subchartaceous, oblong-lanceolate or oblanceolate, up to 16 cm. long, 6 cm. wide, apex acuminate, base acute, glabrous above, persistently scaly beneath along midvein; the margin entire, midvein elevated beneath, sharply impressed above, finely reticulate veined; inflorescence terminal, with foliaceous bracts in axils of lower branches of panicle, the panicle with zigzag rachis, open, up to 12 cm. long, lepidote; flowers 5-parted, subcorymbose; pedicels slender, usually curved, up to 1.5 cm. long; calyx about 3.5 mm. long, subcoriaceous; sepals pellucid-punctate, imbricate, broadly rounded with ear developed on covered side, asymmetric, up to 2.5 mm. long, fully 3 mm. wide, the rounded apex conspicuously retuse and lop-sided, margin scarious and erose-ciliolate; corolla (mature bud) about 8 mm. long; petals united at base into tube about 2 mm. long, asymmetric at apex;

stamens (in mature buds) about 5 mm. long; filaments broad, about 1.3 mm. long, attached about middle of tube; anthers thick, oblong-lanceolate, about 4 mm. long, apiculate, dehiscent by longitudinal slits, epunctate; ovary conical, about 2.8 mm. long; style about 4.5 mm. long; ovules 16–19, pluriseriate.

Panama: Prov. Veraguas, forested mountains W of Alto de Piedras, W of Santa Fe, elev. 3200–5600 ft., Sept. 8, 1978, *Barry Hammel 4599* (MO, holotype), shrub 2.5 m. tall, flowers cream.

A. retusa with *A. glanduloso-marginata* Oerst. and *A. Correae* Lundell belong to a small natural group of taxa. The zigzag rachis of the inflorescence, sharply asymmetric subcoriaceous sepals each differing in apical features, the conical or ellipsoid ovaries, and the large thick longitudinally dehiscent anthers with short filaments are among the distinguishing characteristics. *A. glanduloso-marginata* has crenulate leaves, while those of the other two taxa are entire. In *A. Correae* the leaves are up to 60 cm. long with the large inflorescence exceeding the leaves. *A. retusa* is marked by the prominently retuse rounded apex of the sepals, those of *A. Correae* are similar but less conspicuously notched. In *A. glanduloso-marginata* the sepals are ovate, asymmetric and usually acute at apex. The differences in the ovule count of the three are significant: 16–19 in *A. retusa*, 26–28 in *A. glanduloso-marginata (Proctor 32008)*, and 32 in *A. Correae*, all three counts outside the mean range within species of *Ardisia*.

Ardisia rigidifolia Lundell, Ann. Missouri Bot. Gard. 28: 455. 1941. Plate 164.

Panama: Prov. Cocle, vicinity of El Valle, alt. 800–1000 m., Dec. 22, 1936, *Paul H. Allen 71* (MICH, holotype), small tree, 2.5 m. high, flowers white with yellow stamens.

Ardisia rimiformis Lundell, sp. nov. — Frutex; ramuli graciles, novelli perparce lepidoti; folia petiolata, petiolo canaliculato, 6–7 mm. longo; lamina subcoriacea, subtus pallida, dense peradpresse lepidota, supra glabra, elliptica vel lanceolato-elliptica, 6.5–8.5 cm. longa, 3.5–4 cm. lata, apice subacuminata, acumine obtusa, basi acuta; inflorescentia terminalis, paniculata, pyramidalis, ca. 9 cm. longa et lata, glabra; pedicelli graciles, 7–10 mm. longi; flores 5-meri; sepala ovata, 1.2–1.4 mm. longa, parce macro-aurantiaco-punctata, apice obtusiuscula; corolla ca. 5 mm. longa; petala oblongo-elliptica, ca. 2 mm. lata, basi connata ca. 1 mm., apice asymmetrica, aurantiaco-punctata; stamina ca. 3 mm. longa; filamenta ca. 1.5 mm. longa; antherae anguste lanceolatae, 1.5–2 mm. longae; stylus 4.5 mm. longus, punctatus; ovula 21 vel 22, pluriseriata.

Shrub, 2.5 m. tall, with rather slender branchlets, essentially glabrous, the terminal buds appressed-lepidote; leaves drying blackish but pallid beneath, glabrous above, densely lepidote below with tightly appressed scales, the petioles rather stout, up to 7 mm. long; leaf blades subcoriaceous, elliptic or lanceolate-elliptic, up to 8.5 cm. long, 4 cm. wide, apex short acuminate and obtusish, base acute and decurrent on petiole; inflorescence glabrous, terminal, tripinnately paniculate, pyramidal, about 9 cm. long and equally as wide at base; pedicels very slender, 7–10 mm. long; flowers 5-parted; sepals ovate, 1.2–1.4 mm. long, punctate with a few large orange glands, obtusish, the margin hyaline; corolla about 5

mm. long; petals oblong-elliptic, about 2 mm. wide, connate about 1 mm. at base, apex asymmetric, orange-punctate; stamens about 3 mm. long; filaments attached at middle of corolla tube, about 1.5 mm. long; anthers lanceolate, 1.5 2 mm. long, cleft apically and flaring initially; style slender, 4.5 mm. long, punctate; ovules 21 or 22, pluriseriate.

Panama: Prov. Panama, Cerro Jefe, along trail on ridge running NE from summit, premontane rain forest, alt. ca. 1000 m., Dec. 18, 1974, *S. Mori & J. Kallunki 3730* (MO, holotype; LL, fragment), shrub, 2.5 m. tall, petals white, reflexed, anthers yellow.

From *A. geniculata* Lundell, to which it bears a resemblance, *A. rimiformis* differs in having shorter filaments, longer anthers, larger inflorescences, and leaves densely lepidote on undersurface with brown tightly appressed scales.

Ardisia rivasensis Lundell, sp. nov. Plate 165.

Arbor parva, glabra; ramuli graciles; folia glabra, subsessilis, petiolo crasso, late marginato, 2–3.5 mm. longo; lamina subcoriacea, subtus pallida, anguste elliptica vel lanceolata, 4–7.5 cm. longa, 2–3 cm. lata, apice subabrupte acuminata, acumine obtusiuscula, basi acuta, subintegra; inflorescentia terminalis, subsessilis, glabra, paniculata, ca. 5 cm. longa; flores subcorymbosi, 5-meri; pedicelli 2.5–5.5 mm. longi; sepala 5, ovata, 1.5–1.8 mm. longa, symmetrica, subintegra, parce punctata; corolla ca. 6 mm. longa; petala oblongo-elliptica, apice asymmetrica, basi coalita ca. 1.2 mm., parce punctata; stamina ca. 4 mm. longa; filamenta ca. 1.2 mm. longa; antherae oblongo-lanceolatae, 2.7–3 mm. longae; ovarium ovoideum; stylus 5.2 mm. longus; ovula 17–19, pluriseriata.

Tree, 5 m., entirely glabrous except for terminal buds, these obscurely lepidote; leaves glabrous, subsessile with broad marginate petioles up to 3.5 mm. long; leaf blades subcoriaceous, paler beneath, narrowly elliptic or lanceolate, up to 7.5 cm. long, 3 cm. wide, apex short acuminate, the acumen obtusish, base acute and decurrent, the margin essentially entire, midvein elevated beneath, nearly plane above, the lateral veins slender, inconspicuous; inflorescence glabrous, terminal, subsessile, paniculate, about 5 cm. long and equally as wide at base; flowers 5-parted, subcorymbose; pedicels 2.5–5.5 mm. long; sepals ovate, 1.5–1.8 mm. long, symmetric, thin, apex obtuse-rounded, subentire, punctate with small scattered orange and blackish glands; corolla about 6 mm. long; petals oblong-elliptic, apex asymmetric, united into basal tube about 1.2 mm. long, sparsely punctate; stamens about 4 mm. long; filaments about 1.2 mm. long; anthers oblong-lanceolate, up to 3 mm. long, with short lobes at base, dehiscent with apical pores, obtuse and apiculate, epunctate; ovary ovoid, the style 5.2 mm. long; ovules 17–19.

Nicaragua: Dept. Rivas, Isla Ometepe, Lago de Nicaragua, Volcan Maderas, north slope, elfin forest, on wind-beaten ridge near summit, elev. 1200 m., Feb. 24, 1978, *David Neill & Paul C. Vincelli 3301* (MO, holotype), tree 5 m., common, branches of inflorescence red-purple, flowers pinkish-white.

The subgenus *Icacorea* has numerous closely related species in which group *A. rivasensis* belongs. It is near *A. matagalpana* Lundell and *A. Edwardsii* Lundell, differing in ovule count and in minor features of the flowers. Glabrous except for the apical buds, this is noteworthy.

Ardisia rufa Lundell, Wrightia 4: 182. 1971. Plate 166.

Panama: Prov. Chiriqui, mountain slopes of SE Cerro Punta, alt. 6500–7000 ft., May 22, 1971, *George R. Proctor 32020* (LL, holotype), tree, up to 15 m., ripe fruits black; Las Cumbres, hogback ridge N of Quebrada Iglesia, near town of Cerro Punta, cloud forest, July 22, 1971, *Thomas B. Croat & Duncan M. Porter 16093* (LL), tree, buds greenish, fruits turning red then purple-black; roadsides, pastures and remnants of lower montane wet forest, Bajo Grande, 1–3 km. E of town of Cerro Punta, alt. 2000–2200 m., Feb. 24, 1974, *M. Nee 10067* (LL), shrub 4 m. tall (stump sprout).

From the type locality of *A. rufa*, the two additional collections appear to be referable to this species.

Ardisia Scheryi Lundell, Ann. Missouri Bot. Gard. 28: 456. 1941. Plate 167.

Panama: Prov. Chiriqui, vicinity of Bajo Chorro, alt, 1900 m., July 20–22, 1940, *R. E. Woodson, Jr. & R. W. Schery 686* (MICH, holotype; LL, MO, isotypes); humid forest between Alto de las Palmas and top of Cerro de la Horqueta, alt. 2100–2208 m., March 18, 1911, *H. Pittier 3267* (F, LL, US); Cerro Horqueta, cloud forest, alt. 6500 ft., June 24, 1940, *Christine von Hagen & Wolfgang von Hagen 2129* (LL, MO), tree, 25 ft., 8 in. diam., flowers white, pink; Cerro Horqueta, ca. 4500–5500 ft. alt., July 20, 1968, *J. D. Dwyer & B. R. Lallathin 8781* (MO; LL, fragment), small tree, flowers pink-white.

A. Scheryi, with its short slender pedicels, very small orange-punctate calyx and distinctive short broad anthers with subequal filaments, is a well-marked taxon.

The three other collections cited herewith from the same locality have much larger mostly elliptic leaves, and broader petals linear-punctate medially. Further collections are needed to determine the significance, if any, of these differences.

In the holotype of *A. Scheryi* there are 28 to 30 ovules. In *Dwyer & Lallathin 8781* the ovules range in number from 27 to 33. This count is within the normal variation from the average in *Ardisia*.

Ardisia subsessilifolia Lundell, Wrightia 4: 48. 1968. Plate 168.

Panama: Prov. Chiriqui, Bajo Chorro, Boquete District, in rain forest, elev. 7000 ft., March 2, 1938, *M. E. Davidson 364* (F, holotype), shrub, 15–20 ft., flowers white, calyx tinted bright pink.

Ardisia tuirana Lundell, sp. nov. — Frutex; ramuli graciles, glabri; folia glabra, punctata, petiolata, petiolo canaliculato, 5–12 mm. longo; lamina membranacea, denticulata, elliptica vel oblanceolato-elliptica, 6–11 cm. longa, 2.5–4.5 cm. lata, apice acuminata vel acuta, basi attenuata, acuminata; inflorescentia novella minute stellato-pubescentia (?), glabrata, terminalis, subsessilis, gracilis, late paniculata, ad 2.5 cm. longa, 7 cm. lata; flores corymbosi; pedicelli fructiferi usque ad 1.5 cm. longi; sepala 5, ovata, ad 2.7 mm. longa, punctata; fructus globosus, ca. 5 mm. diam.

Shrub, about 3 m. tall, the branchlets very slender, entirely glabrous; leaves glabrous, punctate, petiolate, the petioles slender, canaliculate, mostly about 1 cm. long; leaf blades thin, the margin denticulate or

crenulate-denticulate, elliptic or oblanceolate-elliptic, up to 11 cm. long, 4.5 cm. wide, the apex rather subabruptly short acuminate, the acumen acutish, base acuminate and decurrent on the petiole, the midvein impressed above, elevated beneath, the slender primary veins inconspicuous; inflorescence with immature fruits, with finely stellate pubescence persisting on lower branch, otherwise strictly glabrous, terminal, with very short peduncle, bipinnately paniculate, with slender rachis and branches; flowers corymbose; fruiting pedicels slender, straight, up to 1.5 cm. long; sepals 5, ovate to broadly ovate, thin, up to 2.7 mm. long, not conspicuously punctate, minutely erose-ciliolate; fruits globose, about 5 mm. in diam., costellate.

Panama: Prov. Darien, Rio Tuira and Rio Paca, June 21, 1962, *J. A. Duke 5025* (LL, holotype); Rio Tuira 2 miles upstream from Boca del Cupa, Aug. 4, 1962, *Duke 5381* (MO, UTD), shrub 8 ft. tall.

In the *Flora of Panama* (Ann. Mo. Bot. Garden 58: 332. 1971) I reported these collections as *A. Romeroi* Cuatr., described from Colombia.

The much longer less punctate ovate sepals of the Panama shrub, together with the discovery of finely stellate pubescence persisting on a lower branch of the inflorescence in *Duke 5381* raises doubts that the Panama plant is conspecific. That the two are closely related is probable, but flowers of the Panama plant are needed to clarify their status.

Ardisia Tysonii Lundell, Wrightia 4: 165. 1971. Plate 169.

Panama: Prov. Panama, Cerro Jefe, in "*Clusia*" forest at 2700–3000 ft., Jan. 27, 1966, *Edwin L. Tyson, J. Dwyer & Kurt Blum 3279* (MO, holotype; LL, isotype), shrub 10 ft. tall, fruits green; along road from Cerro Azul to Cerro Jefe at 2300–2700 ft., Jan. 19, 1969, *Edwin L. Tyson 5309* (MO), shrub, 10 feet tall, fruits green to black when ripe.

A very distinct local endemic referable to the group with glomerate flowers and asymmetric sepals.

Ardisia ursina Lundell, sp. nov. — Arbor, ramulis rufo-stellato-hirsutis; folia hirsuta, petiolata, petiolo marginato, usque ad 1 cm. longo; lamina membranacea, utrinque parce stellato-hirsuta, oblanceolata, 15 20 cm. longa, ca. 6 cm. lata, basi attenuata, apice subacuminata, subintegra; inflorescentia terminalis, dense rufo-stellato-hirsuta, anguste paniculata, 6.5–9 cm. longa, bracteata; pedicelli 2–4 mm. longi; flores 5-meri, corymbosi, glomerati; sepala membranacea, nigropunctata, lanceolata, 5–7 mm. longa, extus stellato-hirsuta, intus glabra, subacuminata; petala glabra, punctata, ovato-elliptica, asymmetrica; antherae crassae; ovarium punctatum, glabrum; ovula ca. 17, pluriseriata.

Slender tree, the branchlets rather slender but rigid, with cover of sordid dark red trichomes, the trichomes up to 2 mm. long, tapering from base to slender apex, the apex stellate with short slender rays; leaves membranaceous, the petioles short, hirsute like the branchlets, up to 1 cm. long, marginate almost to base; leaf blades with scattered long trichomes on both surfaces, oblanceolate, 15–20 cm. long, up to 6 cm. wide, tapering to the marginate base, the apex rather abruptly short acuminate, the margin entire or nearly so, the midvein elevated beneath, sharply impressed above, the primary lateral veins slender; inflorescence terminal, pubescent like the branchlets, narrowly paniculate, 6.5–9 cm.

long, short pedunculate, the 3 to 5 branches subtended at base by foliaceous bracts, the branches simple, the lower about 2.3 cm. long, terminated by a compact corymb; pedicels stout, 2–4 mm. long; flowers 5-parted, corymbose, the pedicels and calyx densely hirsute with long dark red trichomes; sepals imbricate, free to base, thin, lanceolate 5–7 mm. long, subacuminate, conspicuously punctate with black glands, glabrous on inner surface; corolla (in buds) glabrous, the petals united at base, ovate-elliptic, asymmetric at apex, punctate; stamens (in buds) with short filaments, the anthers thick, connivent in bud, apparently epunctate, dehiscent laterally; ovary glabrous, punctate, tapering into slender style about 5 mm. long; ovules 16 or 17, pluriseriate.

Panama: Prov. Panama, El Llano–Carti Road, 10 km. from Inter-American Highway, Oct. 5, 1974, *S. Mori & J. Kallunki 2314* (MO, holotype; LL, fragment), slender tree.

The sordid pubescence of long dark red trichomes usually stellate at apex, the small few-branched inflorescences, and thin leaves with scattered trichomes on both surfaces are among the distinctive features of this unique taxon.

A. ursina closely resembles *A. Nevermannii* Standl. of Costa Rica, but the two differ in calyx and other features. The sepals in *A. ursina* are 5 to 7 mm. long compared to 1.5 mm. in *A. Nevermannii*.

Ardisia vesca Lundell, sp. nov. Plate 170.

Frutex; ramuli graciles, apice novelli adpresse lepidoti; folia parva, petiolata, petiolo 5–7 mm. longo, anguste marginato; lamina chartacea, dense punctata, supra glabra, subtus novella lepidota, lanceolata vel elliptico-lanceolata, 5–8 cm. longa, 2 2.8 cm. lata, apice subabrupte acuminata, basi acuta, integra; inflorescentia terminalis, tenuis, parce lepidota, paniculata, 4–5.5 cm. longa, laxa; flores 5-meri, glabri, subcorymbosi; pedicelli graciles, usque ad 7.5 mm. longi; sepala aurantiaco-punctata, imbricata, asymmetrica, late rotundata, 1–1.2 mm. longa, 1.5–1.9 lata, ciliolata, apice rotundata; corolla glabra, aurantiaco-punctata; ovarium glabrum; stylus ca. 3 mm. longus, punctatus; ovula 14, pluriseriata.

Slender shrub, closely appressed-lepidote at the apex of the slender branchlets, glabrous early; leaves small, densely punctate with rather large pellucid glands, lepidote beneath at first, glabrous early, the petioles slender, narrowly marginate, up to 7 mm. long; leaf blades chartaceous, lanceolate or elliptic-lanceolate, up to 8 cm. long, 2.8 cm. wide, apex short acuminate, base acute, margin entire; inflorescence terminal, slender but widely branched, sparsely lepidote, openly paniculate, up to 5.5 cm. long with short peduncle; flowers 5-parted, glabrous, subcorymbose; pedicels slender, incurved, up to 7.5 mm. long; sepals thickish, orange-punctate, imbricate, laterally asymmetric, broadly rounded, with thin conspicuous well-developed overlapped edge, up to 1.2 mm. long, 1.9 mm. wide, ciliolate, rounded at apex; corolla (in bud) glabrous, orange-punctate, with petals united at least 1 mm. at base; stamens (in buds) with filaments about half the length of anthers, the anthers about 1.8 mm. long in bud, lanceolate, thickish, with apical pores slit longitudinally, subsagittate at base, blunt at apex, epunctate; ovary oblongish, glabrous, style about 3 mm. long, obscurely punctate; ovules 14, pluriseriate.

Panama: Prov. Cocle, near continental divide, along road 8.4 km. above El Cope, elev. 900 m., Jan. 19, 1978, *Barry Hammel 952* (MO, holotype), slender shrub, flowers pale purple.

A. vesca is a very well-marked species of uncertain affinity.

Ardisia Vigoi Lundell, sp. nov. — Frutex; ramuli graciles; folia glabra, petiolata, petiolo ad 1.2 cm. longo, canaliculato, anguste marginato; lamina chartacea, anguste oblongo-elliptica vel oblanceolata, 9–15 cm. longa, 2.5–4.7 cm. lata, apice acuminata, basi cuneata, margine denticulata; inflorescentia terminalis, glabra, late paniculata, pedunculata, ad 6 cm. longa, 7 cm. lata; flores 5- vel 6-meri, corymbosi; pedicelli ad 1.7 cm. longi; calyx 5–6 mm. longus; sepala 5, imbricata, oblonga vel oblongo-elliptica, 4–5 mm. longa, 2.3–2.6 mm. lata, basi coalita ca. 1 mm., apice rotundata, emarginata, dense nigropunctata; corolla ca. 5 mm. longa; petala imbricata, 5 vel 6, basi intus glandulosa, coalita ca. 1.5 mm., obovato-elliptica, ca. 2.5 mm. lata, apice subsymmetrica, obtuso-rotundata, dense nigropunctata; stamina 5 vel 6, ca. 3.5 mm. longa; filamenta crassa, ca. 1.5 mm. longa; antherae lanceolato-oblongae, ca. 2.2 mm. longae, epunctatae, apice mucronatae et rimis brevibus quasi poratim dehiscentes; ovarium ovoideum; stylus ca. 4 mm. longus; ovula 15–18, pluriseriata.

Shrub about 1 meter tall, the branchlets rather slender, terete, glabrous; leaves glabrous, petiolate, the narrowly marginate petioles up to 1.2 cm. long, canaliculate; leaf blades chartaceous, mostly oblanceolate, sometimes narrowly oblong-elliptic, up to 15 cm. long, 4.7 cm. wide, apex acuminate, base cuneate and decurrent on petiole, margin conspicuously denticulate above middle of blade, not conspicuously punctate, the midvein slender, elevated beneath, narrowly impressed above, the primary lateral veins very inconspicuous; inflorescence terminal, glabrous, small and broadly paniculate, with 3–5 branches, few-flowered, up to 6 cm. long, 7 cm. wide, with short peduncle; flowers 5- or 6-parted, corymbose; pedicels long and slender, up to 1.7 cm. long; calyx thin, 5–6 mm. long, not accrescent; sepals 5, oblong or oblong-elliptic, 4–5 mm. long, 2.3–2.6 mm. wide, united at base about 1 mm., rounded and shallowly emarginate at apex, densely black-punctate with blackish short linear and oblongish glands; corolla scarcely exceeding the sepals, about 5 mm. long, black-punctate like the sepals, thin; petals imbricate, 5 or 6, glandular-papillose within at base above staminal tube, united at base about 1.5 mm., obovate-elliptic, about 2.5 mm. wide, apex subsymmetric, obtuse-rounded; stamens 5 or 6, about 3.5 mm. long; filaments stout, about 1.5 mm. long, united about 1 mm. at base into glabrous tube; anthers lanceolate-oblong, about 2.2 mm. long, dehiscent by 2 rimiform apical pores, apiculate, epunctate, shallow lobed at base; ovary ovoid, the style equalling the corolla; ovules 15–18, pluriseriate.

Peru: Dept. San Martin, Prov. Mariscal Caceres, Rio de la Plata, noreste de Tocache, en bosque alto, elev. 500–600 m., May 5, 1975, *Jose Schunke Vigo 8384* (LL, holotype), plants up to 1 meter tall, flowers deep purplish-pink, sepals greenish-yellow, fruits globose. *Vigo 7647* LL) and *8133* (LL), both collections from the same general area as the holotype, are referable here.

This is a unique species which has densely black-punctate bracts, sepals and corolla as in the subgenus *Graphardisia*, with the corolla glandular-papillose at base within. It differs in the nature of the anthers which are lanceolate, dehiscent by two apical pores which are cleft, not flaring and rounded. The basal lobes of anthers are not bulbous. The leaves have scarcely discernible lineate glands. It is unlike any species known to me, and probably is the first South American taxon of the *Graphardisia* complex.

Ardisia zelayensis Lundell, sp. nov. — Arbor; ramuli crassiusculi, glabri; folia glabra, petiolata, petiolo marginato, ad 1.5 cm. longo; lamina membranacea, oblanceolata, ad 23 cm. longa, 7.7 cm. lata, apice acuta, basi cuneata, angustata, margine minute crenulata, subtus punctis lineoliformibus vel rotundis innumeris picta; inflorescentia terminalis, glabra, compacte pinnatim paniculata, ca. 5 cm. longa, 8 cm. lata, bracteolata; flores 5-meri, corymbosi; pedicelli graciles, ad 2.3 cm. longi; sepala membranacea, anguste lanceolato-oblonga, ad 7.5 mm. longa, 3 mm. lata, acutiuscula, dense nigropunctata; corolla ca. 9 mm. longa; petala elliptica, ca. 4.5 mm. lata, basi coalita ca. 2.5 mm., apice obtusiuscula, nigropunctata; stamina 5 mm. longa; filamenta crassa, ca. 2 mm. longa, basi glanduloso-papillosa; antherae ca. 3 mm. longae; ovarium glabrum, minute nigropunctatum; stylus 5 mm. longus; ovula 12 vel 13.

Tree, 6 m. tall, entirely glabrous, the branchlets slender; leaves large, with marginate petioles up to 1.5 cm. long; leaf blades membranaceous or subchartaceous, glabrous, oblanceolate, up to 23 cm. long, 7.7 cm. wide, apex acute, base attenuate, cuneate, decurrent on petiole, margin minutely crenulate above middle, densely punctate with blackish linear and rounded glands, midvein elevated beneath, impressed above, the primary lateral veins slender but elevated, anastomosing into marginal vein 3–5 mm. from edge and a second one along edge; inflorescence terminal, paniculate, compact, much wider than long, sessile, glabrous, the persistent bracts thin, lanceolate-elliptic, 7–12 mm. long, conspicuously black-punctate medially in lines with rounded glands marginally; flowers 5-parted, corymbose; pedicels slender, up to 2.3 cm. long; sepals free to base, thin, membranaceous, narrowly lanceolate-oblong, up to 7.5 mm. long, 3 mm. wide, acutish and subsymmetric at apex, densely black-punctate mostly with linear glands medially; corolla (mature buds) about 9 mm. long; petals thin, elliptic, about 4.5 mm. wide, united at base into tube about 2.5 mm. high, the tube densely glandular-papillose within; stamens 5 mm. long (in buds); filaments thick, about 2 mm. long, attached above base of tube, glandular-puberulent below middle; anthers linear-lanceolate, 3 mm. long, the basal lobes somewhat bulbose, tapering above to the apiculate apex, dehiscent by two small flaring apical pores; ovary glabrous, small, the style (in buds) 5 mm. long, punctate; ovules 12 or 13.

Nicaragua: Dept. Zelaya, near Rio Okanwas, 12 km. E of Rosita, tropical wet forest, June 15, 1978, *David Neill 4478* (MO, holotype), tree 6 m., understory in forest, corolla pink.

A. zelayensis is close to both *A. opegrapha* Oerst. and *A. bracteolata* Lundell. It differs in its larger sepals acutish at apex, cuneate leaves acute

at apex, and, as in *A. bracteolata*, the bractlets are persistent (at least in flower).

A. zelayensis has double marginal veins, while the leaves of the type of *A. opegrapha* (inflorescence fragment and leaf in LL) have a single vein. More collections in flower and fruit of all the taxa in this small natural group are needed to clarify relationships.

Conomorpha baruana Lundell, sp. nov. — Frutex; ramuli graciles vel crassiusculi, novelli villoso-tomentelli; folia petiolis 5–8 mm. longis stipitata, villoso-tomentella; lamina coriacea, supra glabrata, subtus rufo-floccosa, oblonga, 3.5–5.5 cm. longa, 1–2 cm. lata, apice acutiuscula, basi acuta, margine integra, revoluta; inflorescentia racemosa, ad 4 cm. longa, minute glanduloso-pubescentia; pedicelli fructiferi 2.5–5 mm. longi; flores 5-meri; sepala late ovata, 1.3–1.7 mm. longi, extus glanduloso-puberula, margine glanduloso-ciliolata, ut videtur epunctata; fructus subglobosus, ca. 5 mm. diam., punctatus.

Shrub, the branchlets slender, becoming rather stout, with leaves aggregated at ends, at first short villous-tomentose, glabrate; leaves with slender villous-tomentose petioles 5–8 mm. long; leaf blades coriaceous, glabrous above, reddish floccose-tomentose beneath and glaucous, oblong, 3.5–5.5 cm. long, 1–2 cm. wide, apex acutish, base acute and narrowly decurrent on petiole, the margin entire, revolute the entire length of blade; inflorescences racemose, aggregated at apex of branchlets, the racemes up to 4 cm. long, with short bractlet at base of each pedicel, short villous pubescent with intermixture of gland-tipped hairs; pedicels of fruits 2.5–5 mm. long; flowers 5-parted; persistent sepals broadly ovate, 1.3–1.7 mm. long, glandular-puberulent on outer surface, the margin glandular-ciliolate, evidently not punctate; fruits subglobose, about 5 mm. in diameter, conspicuously punctate.

Panama: Prov. Chiriqui, on west slope of El Baru between 6000–7000 ft. elev., very common up to well over 11000 ft., March 27, 1970, *Edwin L. Tyson & Horace Loftin 5956* (MO, holotype), mature fruit black.

In the absence of flowers, the relationship of the taxon is uncertain. From description of pubescence it must resemble *C. fulvo-pulverulenta* Mez of British Guyana.

Gentlea crenulata Lundell, sp. nov. — Frutex, ramulis glabris; folia petiolata, petiolo marginato, canaliculato, 3–7 mm. longo; lamina chartacea, glabra, obovata vel elliptica, 4–9.5 cm. longa, 1.5–4.3 cm. lata, apice subabrupte acuminata, basi rotundata vel obtusiuscula, minute crenulata; inflorescentia terminalis, paniculata, parva, ca. 2.5 cm. longa, pauciflora, punctata, glabra; pedicelli clavati, 2–5 mm. longi; flores 5-meri; sepala glabra, aurantiaco-punctata, parva, late ovata, 1.1–1.4 mm. longa, apice rotundata, minute erosa; corolla glabra, gamopetala, ca. 3 mm. longa, lobis minute aurantiaco-punctatis, oblongo-lanceolatis; stamina ad 5 mm. longa; ovarium glabrum; ovula 6, uniseriata; stylus ad 3 mm. longus; fructus subglobosus, ca. 4 mm. diam.

A small shrub, glabrous except for the rufous-papillose leaf buds; slender branchlets with short apical internodes; leaves on stout short petioles, the minutely crenulate blades pallid, with shortly acuminate apex, rather thin, the slender primary nerves slender and inconspicuous,

the stout midvein nearly plane above, elevated beneath; inflorescence small, conspicuously orange-punctate, glabrous, not over 2.5 cm. long in fruit, subcorymbose, the oblongish thin bractlets subequalling the clavate punctate pedicels; flowers white; sepals densely punctate with small orange glands; petals rather sparsely orange-punctate above, united at base at least 1 mm.; stamens attached at base of corolla, the anthers minute, ovate, with small glands above point of attachment or eglandular; ovary glabrous, the ovules 6 and uniseriate in the flower dissected; immature fruits subglobose, drying costate, reddish.

Guatemala: Dept. Baja Verapaz, Niño Perdido, bordering Rio San Jose, 8 km. north, in high forest, on top of hill, May 27, 1977, *C. L. Lundell & Elias Contreras 21004* (LL, holotype), shrub, flowers white.

Of probable affinity to *G. micranthera* (Donn. Sm.) Lundell, *G. crenulata* has altogether different thin crenulate leaves, very small inflorescences, and small glandular-punctate sepals about 1 mm. long. Branchlets, inflorescences and flower parts of *G. crenulata* are conspicuously orange-punctate.

Gentlea Stevensii Lundell, sp. nov. — Arbor parva; ramuli crassiusculi, glabrati; folia glabra, petiolata, petiolo late marginato, 3-7 mm. longo; lamina chartacea, elliptica vel obovato-elliptica, 7–11 cm. longa, 4 5.5 cm. lata, apice obtusa, basi acuta, integra, perpunctata; inflorescentia terminalis, subsessilis, paniculata, 2–3 cm. longa, apice minute puberula; flores 5-meri, subcorymbosi; pedicelli fructiferi 3–4 mm. longi; sepala oblongo-lanceolata, 2.5–2.8 mm. longa, nigropunctata, ciliata, apice rotundata; fructus subglobosus, ca. 5.5 mm. diam.; stylus ca. 4 mm. longus.

Small tree, the branchlets thickish, with apical buds minutely puberulent and ciliate, otherwise glabrous, the internodes very short; leaves crowded at apex of branchlets, short petiolate and marginate, 3–7 mm. long; leaf blades chartaceous, elliptic or obovate-elliptic, up to 11 cm. long, 5.5 cm. wide, apex broadly obtuse, base acutish and decurrent on the petiole, margin entire, densely punctate, the midvein elevated beneath, nearly plane above, the lateral veins obscure, and openly reticulate; inflorescence subsessile, terminal, paniculate, very minutely puberulent at apex of branchlets, otherwise glabrous, up to 3 cm. wide, with only two or three branches; flowers 5-parted, subcorymbose; fruiting pedicels 3–4 mm. long; sepals thin, oblong-lanceolate, up to 2.8 mm. long, ciliate, rounded at apex, conspicuously black-punctate with large glands; fruits subglobose; style about 4 mm. long.

Nicaragua: Dept. Chontales, ca. 2.8 km. above (N of) Cuapa, roadside, pastures, disturbed evergreen forest on hillside and along small stream, elev. 400–500 m., Jan. 21, 1978, *Warren Douglas Stevens 6053* (LL, holotype), small tree, leaves glossy above, fruits green with darker markings.

Probably nearest *G. micranthera* (Donn. Sm.) Lundell, *G. Stevensii* differs in its essentially glabrous, not glandular-puberulent, inflorescence, short pedicels, and sepals black-punctate and ciliate.

Parathesis bracteolata Lundell, sp. nov. — Frutex; ramuli crassiusculi, minute peradpresse ferrugineo-tomentelli; folia glabrata, petiolata, petiolo marginato, ad 2.3 cm. longo; lamina membranacea, subtus novella parce

et peradpresse pubescentia, oblonga, 15–25 cm. longa, 5–7 cm. lata, apice acuta vel subacuminata, basi cuneata, integra vel subintegra; inflorescentia terminalis, paniculata, ad 15 cm. longa, minute ferrugineo-papilloso-puberula, bracteolata; flores corymbosi; pedicelli ad 7 mm. longi; sepala lanceolata, acuminata, ca 1.4 mm. longa, aurantiaco-punctata, minute tomentella; petala anguste lanceolata, ca. 5 mm. longa, aurantiaco-punctata, extus papilloso-puberula, apice intus villosa; stamina ca. 3 mm. longa; antherae basi connatae, aurantiaco-punctatae; ovarium apice parce puberulum; ovula 7, uniseriata.

Shrub, notable for its minute appressed indumentum of branchlets and pallid orange glands; leaves large, thin, essentially glabrous at maturity, with marginate petioles up to 2.3 cm. long; leaf blades oblong, without bizonal pubescence beneath, up to 25 cm. long, 7 cm. wide, cuneate and decurrent at base, short acuminate at apex, the margin essentially entire, glands inconspicuous, pellucid; inflorescence terminal, narrowly paniculate, mostly papillose-puberulent, up to 15 cm. long, conspicuously bracteolate, the lower bracts leafy, the upper bracts linear-lanceolate; flowers corymbose, orange-punctate, with pedicels up to 7 mm. long; sepals lanceolate, up to 1.4 mm. long, acuminate, orange-punctate; petals narrowly lanceolate, about 5 mm. long, pallidly orange-punctate, papillose-puberulent externally, short villous at apex and along margins within; stamens about 3 mm. long, with short stout filaments, the anthers united to middle along edges, forming ovoid column around gynoecium with extruding style; anthers lanceolate, about 2.75 mm. long, with conspicuous orange-punctate glandular area dorsally; ovary glabrous except for a few short hairs apically; ovules 7 in flower dissected.

Mexico: Tabasco, forest edge on Cerro las Campanas 3 km. E of Teapa, ca. 50 km. S of Villahermosa, alt. 50–100 m., Aug. 12, 1974, *Jim & Rosemary Conrad & Daniel Rodriguez Gallegos 2871* (LL, holotype), shrub 2 m., pale pink petals, inflorescence branches dark pink.

The connate anthers forming a tube around the gynoecium suggest the affinity of *P. bracteolata* to *P. columnaris* Lundell, but that species has coarser indumentum often with dendroid trichomes and all parts are black-punctate. The pallid orange glands and the conspicuously bracteolate inflorescence distinguish *P. bracteolata* from *P. oblanceolata* Lundell and other related taxa.

Parathesis glaberrima Lundell, sp. nov. — Arbor parva, ramulis glabris; folia parva, glabra, petiolata, petiolo 6–10 mm. longo; lamina chartacea, nigropunctata, oblanceolata, 4–7 cm. longa, 1.7–2.5 cm. lata, apice subabrupte acuminata, basi cuneata; inflorescentia axillaris, rubra, glabra, pedunculata, paniculata, ca. 6 cm. longa; flores umbellati, 5-meri; pedicelli 4–7 mm. longi; sepala triangularia, ca. 1 mm. longa, acuminata, minute papillosa; petala lanceolata, ca. 4 mm. longa, dense nigropunctata, intus villosa, extus minute puberula; stamina erecta, ca. 1.5 mm. longa; antherae lanceolatae, ca. 1.4 mm. longae, apiculatae, nigropunctatae; ovarium ovatum, apice minute stellato-puberulum, stylo ad 2.4 mm. longo; ovula 5.

Small tree, 3 m. tall, entirely glabrous except for flowers, all parts conspicuously red-black punctate; leaves small, crowded at apex of branchlets, the petioles slender, narrowly canaliculate, the leaf blades

chartaceous, nearly smooth above, with elevated midvein and 6–8 primary veins beneath, the veins inconspicuous, cuneate at base, subabruptly subacuminate, the acumen acutish; inflorescence axillary, glabrous, very slender and rigid, the rachis 4.5 cm. long including peduncle 2.5 cm. long, the branches of panicle few, slender, remote; flowers solitary or in 4-flowered umbels; pedicels slender, up to 7 mm. long; calyx obscurely and minutely papillose, the valvate sepals narrowly triangular, acuminate, black-punctate; corolla pubescent, ca. 4 mm. long, the valvate narrowly lanceolate petals connate at base, obscurely and minutely puberulent on outer surface, densely villous within at apex and along margins; stamens erect, the filaments punctate, stout, about 0.4 mm. long; anthers lanceolate, subabruptly apiculate, about 1.4 mm. long, conspicuously black-punctate dorsally; ovary and base of style minutely puberulent with mostly stellate trichomes; style about 2.4 mm. long; ovules 5 in flower dissected.

Panama: Prov. Veraguas, Cerro Tute, ca. 10 km. NW of Santa Fe, on ridgetop in cloud forest (lower Montane Rain Forest), above 1000 m. alt., Aug. 3, 1975, *S. Mori, A. Bolten & R. Dressler 7569* (holotype, MO; fragment, LL), small tree, 3 m. tall; inflorescence axises red.

P. glaberrima is remarkably glabrous for this genus, the pubescence being restricted to flower parts. Although in no way to be confused with *P. glabra* Donn. Sm., its relationship is with that taxon. The small densely black-punctate leaves, small rigid few-flowered inflorescence, and flowers less than 5 mm. long distinguish the species.

Parathesis lenticellata Lundell, sp. nov. — Arbor parva; ramuli crassiusculi, lenticellati; folia parva, petiolis ad 7 mm. longis stipitata, canaliculata; lamina chartacea, glabra, elliptica vel obovato-elliptica, 3.5–8.5 cm. longa, 2.2–4 cm. lata, apice obtusa, basi acuta, margine crenulato-serrulata; inflorescentia terminalis, pyramidalis, paniculata, ad 8 cm. longa, crassiuscula; flores 5-meri, subcorymbosi; pedicelli fructiferi 5–6 mm. longi; sepala anguste lanceolata, acuminata, ca. 1.5 mm. longa; fructus subglobosus, ad 9 mm. diam., punctatus.

Small tree, 4 m. tall, the branchlets rather thick, with short internodes, probably minutely appressed puberulent at first, conspicuously lenticellate; leaves small, the petioles slender, up to 7 mm. long, canaliculate; leaf blades chartaceous, thin, glabrous (in fruiting specimen), elliptic or obovate-elliptic, 3.5–8.5 cm. long, 2.2–4 cm. wide, apex obtuse-rounded or subacuminate and rounded, base acute and decurrent on petiole, margin crenulate-serrulate, conspicuously denticulate, midvein beneath slender, elevated, nearly plane above, the primary lateral veins very slender; inflorescence terminal, pyramidal, tripinnately paniculate, up to 8 cm. long, the rachis thickish, foliaceous at base and essentially sessile; flowers (calyx) 5-parted, subcorymbose; pedicels of fruits 5–6 mm. long; sepals valvate, narrowly lanceolate, about 1.5 mm. long subtending fruits, acuminate, puberulent; fruits comparatively large, depressed-globose, drying up to 9 mm. in diam., punctate.

Mexico: Veracruz, Santiago Tuxtla, en el Cerro del Vigia de Santiago Tuxtla, selva mediana subperennifolia, alt. 700 m., Sept. 13, 1978, *J. I. Calzada y V. Sosa 4771* (LL, holotype), arbusto, 4 m.

Without flowers the relationship cannot be definitely stated, but *P. lenticellata* appears to have affinity to *P. oxyphylla* Lundell from Chinantla, Oaxaca. The latter has sharply acuminate much larger leaves with longer petioles, thicker blades, and shorter pedicels.

The holotype has branchlets and petioles covered with a fungus. However, there are traces of a minute indument, which appears to be similar to that of *P. oxyphylla*, on branchlets and inflorescences. The leaves are glabrous in the mature fruiting specimen.

Isotype of *Matudaea trinervia* Lundell, *Eizi Matuda S-194* (LL), Lloydia 3: 209–210. 1940, new genus and species.

Paratype of *Matudaea trinervia* Lundell, *Eizi Matuda 3984* (LL), Lloydia 3: 209–210. 1940.

Holotype of *Ardisia atrata* Lundell, sp. nov., *Barry Hammel, R. Foster & L. McDade 4902* (MO). Negative No. 55670 (F).

Isotype of *Ardisia belizensis* Lundell, *Percy H. Gentle 3500* (LL), Contr. Univ. Mich. Herb. 7: 38. 1942. Negative No. 55609 (F).

Holotype of *Ardisia capitellata* Lundell, sp. nov., *Thomas B. Croat 26678* (LL). Negative No. 55613 (F).

Holotype of *Ardisia colombiana* Lundell, *J. A. Duke 11680* (LL), Wrightia 4: 44. 1968. Negative No. 55606 (F).

Holotype of *Ardisia compressa* Kunth, Herbier Humboldt & Bonpland *165* and *185* (P), Nov. Gen. & Sp. 3: 245. 1818. Negative No. 38725 (F).

Holotype of *Ardisia conglobata* Lundell, sp. nov., *S. Mori, J. Kallunki & B. Hansen 4172* (LL). Negative No. 55621 (F).

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Holotype of *Ardisia Correae* Lundell, sp. nov. *M. D. Correa A. et al. 2690* (MO). Negative No. 55681 (F).

Holotype of *Ardisia crassipedicellata* Lundell, sp. nov., *S. Mori & J. Kallunki 4930* (LL). Negative No. 55643 (F).

Holotype of *Ardisia Crosbyi* Lundell, sp. nov., *S. Mori & M. Crosby 6423* (LL). Negative No. 55657 (F).

Holotype of *Ardisia cucullata* Lundell, *Eizi Matuda 5201* (LL), Wrightia 3: 26. 1962. Negative No. 55607 (F).

Holotype of *Ardisia matagalpana* Lundell, *Louis O. Williams et al. 24874* (F), Wrightia 4: 61. 1968.

Holotype of *Ardisia Maxonii* Standl., *William R. Maxon 5402* (US), Journ. Wash. Acad. Sci. 17: 552. 1927.

Holotype of *Ardisia megistophylla* Lundell, *A. Fernandez 251* (US). Wrightia 4: 147. 1970.

Holotype of *Ardisia microcalyx* Lundell, *Paul H. Allen 1013* (MO), Wrightia 4: 46. 1968.

Fig

Mexico: San Luis Potosí: vici
Cerro Miramar.

In subtropical forest wit
Elevation 4400 feet.

A small tree about 13 feet tall,
but tending toward horizontal, divi
into three trunks. Bark tan
smooth but flecked with small dark rough
Flowers pink.

Tolerably common in the Mir

Holotype of *Ardisia hyalina* Lundell, *Robert J. Newman 19* (US), Wrightia **3: 99. 1964.**

Holotype of *Ardisia ibaguensis* Lundell, *M. Koie 5138* (C), Wrightia 3: 197. 1966.

Holotype of *Ardisia limonensis* Lundell, sp. nov., *Christopher Davidson 7009* (MO). Negative No. 55677 (F).

Holotype of *Ardisia Maasolae* Lundell, sp. nov., *Juha Maasola 6* (MO). Negative No. 55642 (F).

Holotype of *Ardisia Hagenii* Lundell, *Christine von Hagen & Wolfgang von Hagen 2008* (MO), Wrightia 4: 59. 1968.

Holotype of *Ardisia Hammelii* Lundell, sp. nov., *Barry Hammel 3141* (MO). Negative No. 55667 (F).

Holotype of *Ardisia Hintonii* Lundell, *Geo. B. Hinton et al. 13794* (LL), **Wrightia 5: 61. 1974. Negative No. 55614 (F).**

Holotype of *Ardisia hirtella* Lundell, *C. L. Lundell 6302* (LL), Wrightia 3: 98. 1964. Negative No. 55615 (F).

Holotype of *Ardisia erythrocarpa* Lundell, *C. L. Lundell 16267* (LL), Wrightia 2: 59. 1960. Negative No. 55604 (F).

Paratype of *Ardisia Folsomii* Lundell, sp. nov., *Barry Hammel 2629* (MO). Negative No. 55624 (F).

Holotype of *Ardisia geniculata* Lundell, *R. E. Woodson Jr. & R. W. Schery 944* (MICH), Ann. Missouri Bot. Gard. 28: 454. 1941.

Holotype of *Ardisia Gentryi* Lundell, sp. nov., *Al Gentry & Mary Fallen 17348* (LL). Negative No. 55656 (F).

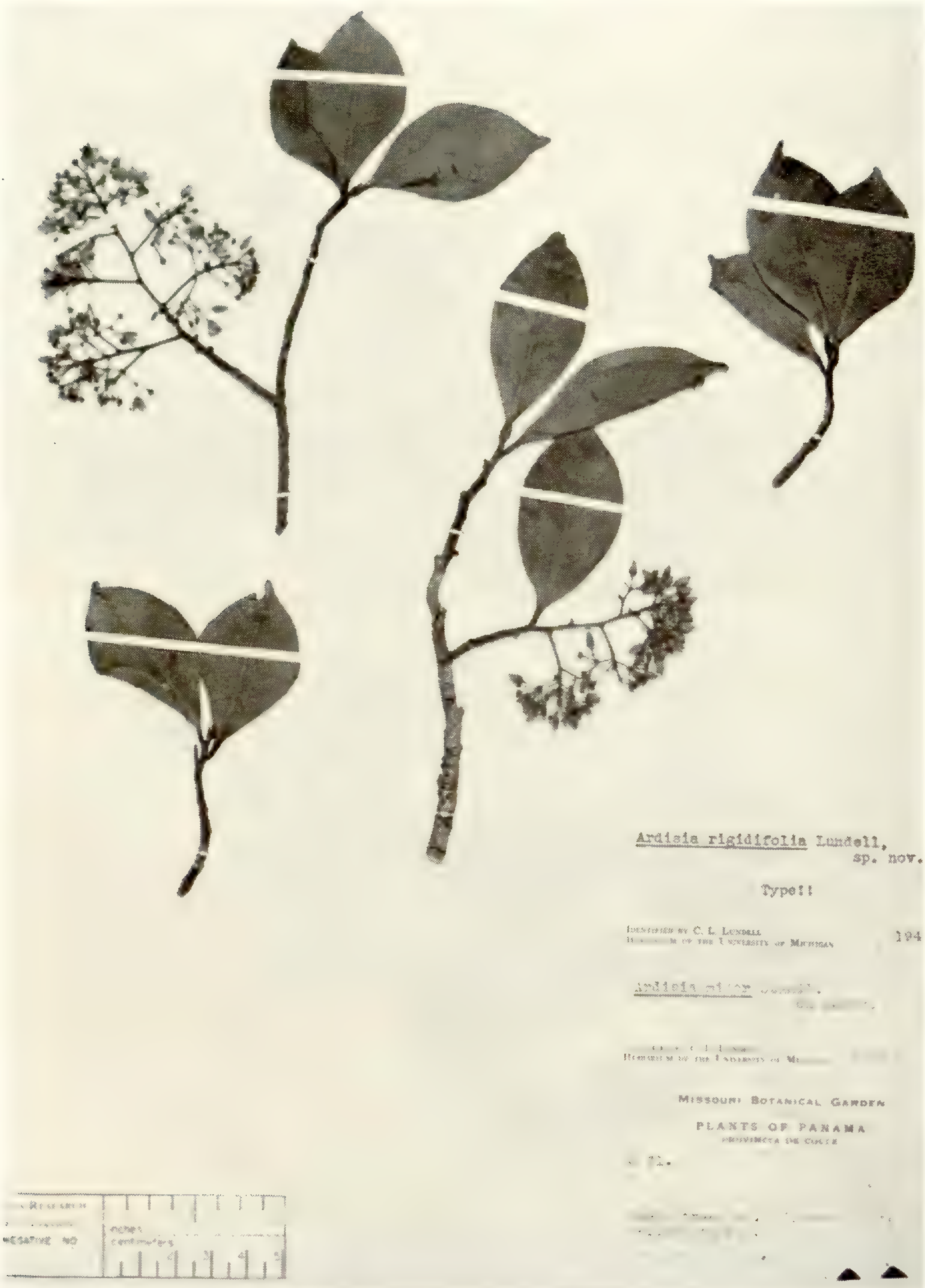
Holotype of *Ardisia minima* Lundell, sp. nov., *Thomas B. Croat 37461* (MO). Negative No. 55601 (F).

Holotype of *Ardisia Oerstediana* Lundell, sp. nov., *Thomas B. Croat & J. P. Folsom 34055* (LL). Negative No. 55602 (F).

Holotype of *Ardisia pluriflora* Lundell, sp. nov., *M. D. Correa A., R. Dressler & C. Garibaldi 2326* (MO). Negative No. 55611 (F).

Holotype of *Ardisia Proctori* Lundell, *George R. Proctor, Gayle C. Jones & Lynden Facey 27313* (LL), Wrightia 4: 64. 1968. Negative No. 55634 (F).

Holotype of *Ardisia retusa* Lundell, sp. nov., *Barry Hammel 4599* (MO). **Negative No. 55625 (F).**



Holotype of *Ardisia rigidifolia* Lundell, *Paul H. Allen 71* (MICH), Ann. Missouri Bot. Gard. 28: 455. 1941.

Holotype of *Ardisia rivasensis* Lundell, sp. nov., *David Neill & Paul C. Vincelli 3301* (MO). Negative No. 55612 (F).

LUNDELL HERBARIUM
FIELD MUSEUM OF NATURAL HISTORY
FLORA OF PANAMA
Ardisia rufa Lundell, sp. nov.
TYPE:
Tree, up to 15 m., ripe fruits black.

Holotype of *Ardisia rufa* Lundell, *George G. Proctor 32020* (LL), Wrightia 4: 182. 1971. Negative No. 55644 (F).

Holotype of *Ardisia Scheryi* Lundell, *R. E. Woodson, Jr. & R. W. Schery 686* **(MICH), Ann. Missouri Bot. Gard. 28: 456. 1941.**

Holotype of *Ardisia subsessilifolia* Lundell, *M. E. Davidson 364* (F), Wrightia 4: 48. 1968.

Isotype of *Ardisia Tysonii* Lundell, *Edwin L. Tyson, J. Dwyer & Kurt Blum 3279* (LL), Wrightia 4: 165. 1971. Negative No. 55646 (F).

Holotype of *Ardisia vesca* Lundell, sp. nov., *Barry Hammel 952* (MO). **Negative No. 55676 (F).**

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NEOTROPICAL MYRSINACEAE – III

Cyrus Longworth Lundell

Ardisia acuminifolia Lundell, sp. nov. – Frutex; ramuli graciles, lepidoti; folia parva, petiolata, petiolo 2.5–4 mm. longo, marginato; lamina chartacea, subtus novella dense lepidota, glabrata, oblanceolata, 3.5–8 cm. longa, 1–2.8 cm. lata, apice abrupte caudato-acuminata, basi subcuneata, crenulato-denticulata, supra minute foveolata; inflorescentia terminalis et axillaris, paniculata, dense lepidota, 1.5–5 cm. longa; flores corymbosi, 4- vel 5-meri; pedicelli 3–4 mm. longi; sepala ovata, 1–1.2 mm. longa, dextrorsa, aurantiaco-punctata, obtusiuscula vel acutiuscula, parce eroso-ciliolata, extus parce lepidota; corolla ca. 4 mm. longa; petala basi connata ca. 0.7 mm., anguste oblonga, parce aurantiaco-punctata, apice obtusa; stamina ca. 3 mm. longa; filamenta ca. 1.2 mm. longa; antherae anguste lanceolatae, apiculatae; placenta parva; ovula 6–8.

Shrub, much-branched, the slender short branchlets densely lepidote at first; leaves small with short marginate petioles up to 4 mm. long; leaf blades chartaceous, densely lepidote beneath at first, glabrate, oblanceolate, 3.5–8 cm. long, 1–2.8 cm. wide, apex abruptly short caudate-acuminate, base subcuneate, margin conspicuously crenulate-denticulate from below middle to apex, inconspicuously punctate, foveolate above; inflorescence lepidote, small and rather compact, terminal and axillary, paniculate with several primary branches, the rachis up to 5 cm. long, with short peduncle; flowers small with oblongish buds, 4- or 5-parted, densely corymbose; pedicels 3–4 mm. long; conspicuously lepidote; sepals small, dextrorse, glandular and rather opaque when dry, sparsely lepidote, ovate, 1–1.2 mm. long, obtusish or acutish, the margin inconspicuously erose-ciliolate; corolla about 4 mm. long, with petals connate at base about 0.7 mm., narrowly oblong, punctate medially with a few lineate and round orange glands, obtuse at apex; stamens attached about middle of corolla tube, about 3 mm. long; filaments rather slender, about 1.2 mm. long; anthers about 2 mm. long, linear-lanceolate, widest near base, the shallow basal lobes rounded, dehiscent by apical pores, apiculate; ovary ovoid with style slender, about 3.5 mm. long; ovules 6–8, in several series.

Nicaragua: Dept. Zelaya, bridge over (Caño) Shilam Wasito, ca. 6 km. E of first suspension bridge E of Rosita on road to Bonanza, thicket along stream, elev. ca. 75 m., April 24, 1978, *Warren Douglas Stevens 8106* (LL, holotype), dense shrub at edge of water, flower buds pink, open corolla white, anthers yellow, fruits bright red.

Resembling *A. Cookii* Lundell and *A. longicaudata* Lundell of Costa Rica and *A. fruticosa* Lundell of Panama, *A. acuminifolia* is featured by its small crenulate-denticulate leaves, 4- or 5-parted very small flowers, and few ovules. In these taxa the small corymbose inflorescences are terminal and axillary.

Ardisia colonensis Lundell, Wrightia 5: 281. 1976.

Panama: Prov. Colon, Santa Rita Ridge road, 4 miles from Transisthmian Highway to Agua Clara weather station, alt. ca. 500 m., Dec. 11, 1973, *R. Dressler & C. Berg 8829* (LL, holotype), slender tree 7 m., fruits turning reddish-black; al este de la zona montañosa de Santa Rita, Jan. 11, 1968, *M. D. Correa & R. L. Dressler 597* (MO), arbol de 25–30 pies de alto, frutos negros-morados cuando maduros.

Ardisia Croatii Lundell, Wrightia 5: 281. 1976.

Panama: Prov. Veraguas, valley of Rio Tercero Braso beyond Escuela Agricola Alto Piedra above Santa Fe, primary forest along road, Aug. 29, 1974, *Thomas B. Croat 27327* (LL, holotype), tree, 10 m., inflorescence whitish, flowers pale lavender; beyond Rio Tres Brazos, 9 km. from Santa Fe, July 24, 1974, *Croat 25595* (LL), shrub, 3.5 m., flowers greenish in bud; along road between Escuela Agricola and Alto Piedra (above Santa Fe) and Rio Dos Bocas ca. 5–8 km. from Escuela, 730–770 m. elev., July 26, 1974, *Croat 25907* (LL, paratype), tree, 6 m., flowers white in bud.

Ardisia Dodsonii Lundell, sp. nov. — Arbor parva; ramuli crassi, lepidoti; folia magna, integra, petiolata, petiolo marginato, ad 6 mm. longo; lamina membranacea, subtus parce lepidota, dense punctata, oblonga vel oblanceolato-oblonga, ad 33 cm. longa, 9.5 cm. lata, apice acuminata, basi angustata, nervosa, utrinque reticulato-venosa; inflorescentia lepidota, paniculata, basi folioso-bracteata; pedicelli 3.5–6 mm. longi; flores 5-meri, corymbosi, aurantiaco-punctati; sepala dextrorsa, suborbicularis, 3–3.4 mm. longa et lata, extus parce lepidota; alabastra glabra, ovoidea, apice mammosa; filamenta subnulla; antherae crassae, lanceolatae, apiculatae; ovarium glabrum; ovula ca. 30, pluriseriata, parva.

Tree to 15 m. tall, with lepidote thickish branchlets; leaves large, paler beneath, very thin, rather sparsely lepidote beneath, conspicuously punctate, petiolate, the petioles short, marginate to base, deeply canaliculate; leaf blades entire, with numerous primary lateral veins rather conspicuous beneath, obscurely reticulate-veined on both surfaces, oblong or oblanceolate-oblong, up to 33 cm. long, 9.5 cm. wide, apex acuminate, base narrowed and decurrent to base of petiole; inflorescence paniculate, (only a terminal segment available) with slender rachis and branches, lepidote, with foliaceous bract subtending basal branch; pedicels (of buds) up to 6 mm. long; flowers 5-parted, corymbose, orange-punctate; sepals dextrorse, suborbicular, up to 3.4 mm. long and wide, symmetrical, sparsely lepidote; corolla in bud ovoid, the lobes united at base; stamens with short spreading filaments, the anthers (in buds) thick, lanceolate, apiculate, longitudinally dehiscent; ovary smooth; ovules about 30, very small, pluriseriate.

Ecuador: Pros. Los Rios or Pichincha, path following ridge line at El Centinela at crest of Montanas de lla on road from Patricia Pilar to 24 de Mayo at km. 12, elev. 600 m., Oct. 2, 1979, *C. H. Dodson, A. H. Gentry & G. Shoupp 8677* (MO, holotype; LL, fragment & xerox copy), tree to 15 m. tall, flowers white.

Although flowers are described as white, only buds are available in the holotype, and the segment of the inflorescence is separate. Presumably the inflorescence is large and terminal.

A. Dodsonii bears a resemblance to *A. Correae* Lundell of Panama in leaf type and inflorescence. It differs at once from that taxon in its much larger sepals and long pedicels.

Ardisia Fendleri Lundell, Wrightia 4: 45. 1968.

Panama: Canal Zone, Isthmus of Panama, Chagres, Feb. 20, 1850, *A. Fendler 314* (K, holotype; F, K, LL, MO, P, US, isotypes); Barro Colorado Island, tree on shore near end of Chapman Trail, Feb. 28, 1931, *C. L. Wilson 73* (LL); Barro Colorado Island, shore, Drayton inlet, Dec. 28, 1969, *Robin Foster 1464* (LL), shrub 4 m., flowers white; shoreline on SE edge of cove N of Chapman Trail end, June 5, 1970, *Thomas B. Croat 10757* (LL), tree 5 m., mature fruits black. Prov. Colon, Maria Chiquita, Aug. 10, 1963, *John D. Dwyer 4351* (LL), shrub 8 ft. tall, fruits dull red; vicinity of San Miguel de la Borda, April 21, 1970, *Croat 9888* (LL), tree 7 m., flowers white.

Ardisia fimbrillifera Lundell, Wrightia 4: 180. 1971.

Costa Rica: Prov. Heredia, Tirimbina, in tropical wet forest, elev. 700 ft., June 2, 1971, *George R. Proctor 32238* (LL, holotype), tree, up to 20 m. tall; Tirimbina, Sarapiqui, Istaru Farm, in secondary growth, alt. 220 m., April 3, 1970, *Roy W. Lent 1922* (LL), tree of 8 m., flowers very light gray; Puerto Viejo, Sarapiqui, Finca La Selva, Jan. 25, 1973, *Gary S. Hartshorn 1106* (MO), about 20 cm. dbh., mature fruit red.

Panama: Prov. Veraguas, lower montane wet forest 7 km. W of Santa Fe on new road past agricultural school, alt. ca. 2900 ft., April 12, 1974, *M. Nee 11191* (LL), small tree 8 m. tall; N of Santa Fe, ca. 2 km. N of Escuela Agricola Alto de Piedra, Oct. 17, 1974, *S. Mori & Kallunki 2591* (MO), tree, 7.5 m. tall, 17 cm. dbh.; NW of Santa Fe, 1.8 km. from Escuela Agricola Alto de Piedra, common in second growth, Feb. 23, 1975, *Mori & Kallunki 4775* (LL), tree, 4 m. tall, fruits black.

Although the Panama collections are from elevations fully 2000 ft. above localities where the species has been found in Costa Rica, there are no significant differences evidenced in the material available.

Ardisia Foreroi Lundell, sp. nov. — Arbor parva; ramuli graciles, minute lepidoti; folia petiolata, petiolo 2–4 mm. longo; lamina chartacea vel subcoriacea, lanceolata, 5–9.5 cm. longa, 2–3.2 cm. lata, apice acuminata, basi acuta, subtus minute lepidota; inflorescentia terminalis, parvissima, ca. 2 cm. longa, paniculata, pauciflora, lepidota; flores 5-meri, corymbosi; pedicelli crassi, ca. 2 mm. longi; sepala ovata, 1–1.3 mm. longa, ciliolata; corolla ca. 5 mm. longa; petala anguste lanceolata, basi connata ca. 1 mm.; stamina 3 mm. longa; filamenta ca. 1.75 mm. longa; antherae lanceolatae, ca. 2 mm. longae, apiculatae; ovarium glabrum, stylo ca. 4 mm. longo; ovula parva, ca. 28.

Small tree, 4 m. tall; branchlets slender, rather short, minutely appressed lepidote, appearing smooth; leaves essentially subsessile with marginate petioles less than 4 mm. long, lepidote; leaf blades drying blackish, paler beneath, chartaceous, firm, foveolate on both surfaces, inconspicuously lepidote beneath, lanceolate, up to 9.5 cm. long, 3.2 cm.

wide, mostly smaller, apex acuminate, base acute and decurrent; inflorescence terminal, very small, about 2 cm. long, paniculate, few-flowered, lepidote; flowers 5-parted, corymbose, lepidote; pedicels rather stout, about 2 mm. long; sepals thickish, ovate, 1–1.3 mm. long, inconspicuously and irregularly ciliolate; corolla ca. 5 mm. long, the narrow petals lanceolate, connate at base about 1 mm., stamens 3 mm. long; filaments rather slender, subequalling anthers, about 1.75 mm. long; anthers attached about one-fourth above the subsagittate base, lanceolate, about 2 mm. long, apiculate, dehiscent by flaring apical pores; ovary glabrous with style about 4 mm. long; ovules about 28, very small, pluriseriate.

Colombia: Dept. Choco, Carretera, Quibdo-Guayabal, alt. 40 m., April 25, 1975, *E. Forero, R. Jaramillo M. & J. McElroy 1146* (MO, holotype; LL, fragment and xerox copy), arbolito de 4 m.

Superficially, *A Foreroi* resembles *A. minima* Lundell, both taxa having greatly reduced inflorescences and similar leaves. *A. minima* has prominently pellucid-punctate leaves, and stems and inflorescences are coarsely lepidote. The punctation in *A. Foreroi* is obscure.

Ardisia glomerata Lundell, Am. Midl. Nat. 29: 486. 1943; Ann. Missouri Bot. Garden 58: 325, fig. 15. 1971.

Panama: Prov. Cocle, hills north of El Valle de Anton, trail to La Mesa, *P. H. Allen 2741* (MO, holotype; LL, fragment of holotype; A, isotype); between Cerro Pilon and El Valle, alt. 700–900 m., Aug. 15, 1967, *J. A. Duke & J. D. Dwyer 13964* (LL), shrub, flower blue-gray; El Valle de Anton at the foot of Cerro Pilon, cloud forest, alt. ca. 2000 ft., Aug. 15, 1967, *Dwyer & Mireya D. Correa A. 7938* (GH, LL, MO), tree to 25 ft., buds dirty pink; foothills of Cerro Pilon, near El Valle, elev. ca. 900 m., Oct. 5, 1967, *Duke & Correa 14692* (LL), spindly shrub, flowers bluish-pink; El Valle, Cerro Pilon, cloud forest, elev. 3000 ft., Jan. 4, 1968, *Duke & B. R. Lallathin 14989* (LL), small tree, fruits ultimately black, scanty, flesh sweet but acid, osseous seeds cream colored, fruits edible, *"uvero"*; La Mesa, above El Valle, woods, Jan. 3, 1974, *Dwyer 11866* (LL), tree to 15 ft. tall, fruits grape-like in appearance, form, and quantity.

Ardisia jalapensis Lundell, sp. nov. — Frutex; ramuli graciles glanduloso-puberuli et parce villosi; folia petiolis 6–13 mm. longis stipitata; lamina membranacea, elliptica vel oblanceolato-elliptica, 6–12.5 cm. longa, 3–5 cm. lata, apice acuminata, basi acuta, parce nigropunctata, margine serrulata; inflorescentia terminalis, paniculata, ad 5 cm. longa et lata, minute glanduloso-puberula et parce villosa; flores 5-meri, corymbosi; pedicelli 2.5–4.5 mm. longi; sepala imbricata, lanceolata, 1.5–2 mm. longa, acuta, nigropunctata, ciliolata; fructus subglobosus.

Shrub, 2 m. tall, the branchlets very slender, glandular-puberulent with gland-tipped hairs and short villous, not densely so; leaves with petioles and midvein beneath pubescent like branchlets with reddish hairs, the petioles slender, canaliculate, 6–13 mm. long; leaf blades very thin, membranaceous, glabrous except along midvein beneath, elliptic or oblanceolate-elliptic, 6–12.5 cm. long, 3–5 cm. wide, apex acuminate, base acute and decurrent on petiole, punctate at maturity with small dispersed black glands, margin conspicuously serrulate, the primary

veins very slender, arcuately ascending; inflorescence terminal, essentially sessile, openly paniculate, about 5 cm. long and wide, pubescent like the branchlets; flowers 5-parted, corymbose; pedicels short, 2.5–4.5 mm. long (young fruiting stage), sparsely glandular puberulent; sepals free to base, imbricate, thin, lanceolate, 1.5–2 mm. long, acute, ciliolate, medially rather conspicuously punctate with blackish glands; immature fruits subglobose.

Mexico: Veracruz, Jalapa, kilommetro 7 carretera San Andresito, bosque caducifolio–encinar, alt. 1320 m., Aug. 4, 1976, *M. G. Sola B. 610* (LL, holotype), arbusto, 2 mts.

Closely related to *A. Liebmannii* Oerst., *A. jalapensis* differs in the nature of its indument and in having thin ciliolate sepals with elevated black glands. *A. Liebmannii* is strictly puberulent and the glands of the coriaceous ciliate sepals are orange. This is another example of the pairing of species in *Ardisia*.

Ardisia Kallunkii Lundell, Wrightia 5: 285. 1976.

Panama: Prov. Veraguas, on slopes of Cerro Tute, NW of Santa Fe, 1 km. from Escuela Agricola Alto de Piedra, Feb. 24, 1975, *S. Mori & J. Kallunki 4781* (LL, holotype), tree, 6 m. tall, petals white, anthers yellow; above Santa Fe beyond Escuela Agricola Inter-Americana, 1.8 miles beyond fork in road on Pacific slope, steep forested slopes above rocky ravine on side of Cerro Tute, April 5, 1976, *Thomas B. Croat 34163* (LL), tree 4 m., flowers white, anthers yellow.

A Kallunkii is very close to *A santafeana* Lundell, and flowering material of the latter is needed to clarify the status of the two taxa.

Ardisia leucocarpa Lundell, sp. nov. — Arbor parva, glabra; ramuli crassiusculi; folia longe petiolata, petiolis 1.2–1.8 mm. longis, validis stipitata; lamina oblanceolata, 10.5–19.5 cm. longa, 3.3–6.5 cm. lata, apice subabrupte acuminata, basi cuneata, chartacea, prominulo-reticulata, glabra; inflorescentia terminalis, glabra, racemoso-paniculata, ca. 15 cm. longa; pedicelli graciles, 1.2–2 cm. longi; flores 5-meri; sepala ovata, ca. 3 mm. longa, apice obtusa vel rotundata, ciliolata, minute et dense punctulata; leucocarpa.

Small glabrous tree up to 8 m. tall, the branchlets rather slender; leaves with slender canaliculate petioles up to 1.8 cm. long; leaf blades glabrous, oblanceolate, 10.5–19.5 cm. long, 3.3–6.5 cm. wide, entire, the apex subabruptly and sharply acuminate, base cuneate, chartaceous, conspicuously but finely reticulate-veined, punctate with band of small glands marginally, and with larger rounded glands scattered over the blade; inflorescence terminal, about 15 cm. long, subsessile, the panicle consisting of few long-peduncled racemes; pedicels slender, 1.2–2 cm. long, the basal each subtended by a slender punctate lanceolate bractlet about 5 mm. long; flowers 5-parted, with one pair of sepals sometimes united to middle; sepals glabrous, nearly free, extrorse, rather thin, broadly ovate, usually 3 mm. long, with obtuse or rounded apex, densely punctate with small reddish-black glands over entire surface, the margin ciliolate; fruits described by Matuda as "milkish white", ellipsoid, about 1 cm. long, apiculate.

Mexico: Chiapas, Escuintla, Husicil, in forest, July 18, 1947, *Eizi Matuda 16724* (F, holotype; LL, fragment), a tree, 7–8 m.

In the absence of flowers the relationship of the taxon is uncertain, but it appears to belong in the *A. paschalis* Donn. Sm. complex. The thin finely reticulate-veined oblanceolate leaves sharply acuminate, the long slender petioles, the rather thin densely punctulate ciliolate sepals, and the milkish-white fruits are features by which *A. leucocarpa* may be recognized. The white fruits are unique.

In the absence of flowers I have debated the description of the species for over thirty years!

Ardisia Liesneri Lundell, sp. nov. — Arbor parva; ramuli graciles, rufotomentosi; folia petiolata, petiolo ad 7 mm. longo, anguste marginato; lamina chartacea, lanceolata, 10–14.5 cm. longa, 3–5.4 cm. lata, apice subabrupte acuminata, basi acuta, supra glabra, subtus lepidota, reticulata; inflorescentia terminalis pauciflora, paniculata, 3–6 cm. longa, tomentella; flores 5-meri, umbellati vel subcorymbosi; pedicelli crassi, 5–6.5 mm. longi; sepala ovato-elliptica, ca. 2.2 mm. longa, maculata, subintegra.

Tree, 6 m. tall, the branchlets rigid but rather slender, tomentose with short reddish sessile or short-stalked stellate trichomes, appearing finely scurfy; leaves petiolate, the petioles 5–7 mm. long, narrowly marginate, pubescent beneath like the branchlets; leaf blades chartaceous, paler beneath, lanceolate, up to 14.5 cm. long, 5.4 cm. wide, apex subabruptly acuminate, base acute and decurrent, reddish-lepidote beneath with small appressed scales, the pubescence of midvein like that of stems, reticulate-veined on lower surface; inflorescence terminal, few-flowered, pedunculate, paniculate with several primary branches, 3–6 cm. long, reddish-pubescent like the stems; flowers 5-parted, umbellate or subcorymbose; pedicels stout, up to 6.5 mm. long; sepals firm beneath young fruits, ovate-elliptic, 2–2.2 mm. long, rounded at apex, conspicuously maculate with small reddish-orange glands, the margin hyaline, subentire, evidently ciliolate in flower for remnants of small hairs persist.

Costa Rica: Prov. Puntarenas, Osa Peninsula, Corcovado National Park, slopes above Llorona, in primary forest, July 13, 1977, *Ronald Liesner 3266* (MO, holotype), 6 m. tree.

A. Liesneri is a very distinct taxon of uncertain relationship. The material is unsatisfactory being in young fruit. The peculiar dense indument consisting of sessile or short-stalked stellate hairs is present in only a few species of this genus in Central America.

Ardisia mayana Lundell, sp. nov. — Frutex; ramuli crassi, glabri; folia petiolis 1.2–2 cm. longis stipitata; lamina subcoriacea, glabra, pallida, obovata vel elliptica, 15–25 cm. longa, 6.5–10 cm. lata, apice acuta vel subacuminata, basi acuta, integra; inflorescentia terminalis, bi- vel tripinnatim paniculata, ad 22 cm. longa, 18 cm. lata, multiflora, glabra; pedicelli ad 1.3 cm. longi; flores racemosi, 5- raro 6-meri; sepala glabra, imbricata vel dextrorsa, basi connata, ovata, ca. 3 mm. longa et lata, apice late obtusa vel rotundata, ciliata, parce punctata; corolla ca. 12 mm. longa; petala basi connata ca. 1.5 mm., elliptica, ca. 6 mm. lata,

apice asymmetrica, intus aurantiaco-papillata, parce punctata; stamina ca. 7 mm. longa; ovarium glabrum; ovula 64–66.

Shrub, glabrous, with thick branchlets; leaves large, the stout marginate petioles up to 2 cm. long; leaf blades pallid, subcoriaceous, obovate or elliptic, up to 25 cm. long, 10 cm. wide, apex acute or subacuminate, base acute and decurrent on the petiole, the venation inconspicuous, prominently punctate marginally, the margin entire; inflorescence terminal, the racemes bi- or tripinnately paniculate, up to 22 cm. long, nearly as wide at base, multiflowered, the pedicels slender, accrescent, up to 1.3 cm. long; flowers 5- or rarely 6-parted; calyx with thin sepals united below, the sepals imbricate or dextrorse, glabrous on both surfaces, ovate, about 3 mm. long and wide, subequal, obtuse-rounded at apex, ciliate, apically sparsely puncticulate with small reddish-black or reddish glands, these sometimes clustered; corolla about 12 mm. long; petals thin, united at base about 1.5 mm., elliptic, about 6 mm. wide, asymmetric at apex, sparsely punctate with scattered elongate pallid glands, the basal star of corolla bright orange, glandular-papillate; stamens connivent into ovoid column, about 7 mm. long; filaments thick, about 1.8 mm. long, not punctate; anthers ovoid-elliptic, thick, about 5 mm. long, acutish, with small blackish glands at apex; ovary ovoid, tapering into style 8 mm. long; placenta ovoid, ovules 64–66, pluriseriate.

Guatemala: Dept. Peten, Tikal, in *ramonal* covering the ruins, June 23, 1960, *Elias Contreras 1162* (LL, holotype and isotype), shrub, flowers white with petals orange at base within, *"xilil."*

In my treatment of the Myrsinaceae in the *Flora of Guatemala* (Fieldiana: Botany, Vol. 24, part VIII, nos. 1 and 2, pp. 135–200. 1966), *Contreras 1162* was illustrated in fig. 38. That figure was drawn from the holotype of *A. mayana*.

A. mayana, closely related to *A. Lindenii Mez*, appears to differ in having 64–66 ovules. The taxon has scattered small pitted gland-like structures on undersurface of leaf blades which are unique and suggestive of domatia.

Ardisia megistophylla Lundell, Wrightia 4: 147. 1970.

Colombia: Dept. del Choco, Costa del Pacifico, ensenada de Utria, en selva, June 5, 1950, *A. Fernandez 251* (US, holotype), arbusto de 2 m., fruto vino tinto.

Panama: Prov. Panama, El Llano-Carti Road, 10–12 km. from junction with Inter-American Hwy., ca. 410 m. elev., Oct. 31, 1974, *S. Mori & J. Kallunki 2919* (MO), shrub, 2.5 m. tall, fruits shiny.

Another collection from Panama, *W. H. Lewis et al. 2808* (LL, MO), cited in the original description (l.c.), is referable with doubt to *A. megistophylla*. The slender larger inflorescence, and longer slender pedicels are atypical. However, *Mori & Kallunki 2919* closely match the type and can be referred with confidence to the taxon.

A. megistophylla and *A. macrostachya* Lundell are related.

Ardisia metensis Lundell, sp. nov. – Frutex; ramuli graciles, minute lepidoti; folia glabrata, petiolata, petiolo 5–9 mm. longo, canaliculato, subtus lepidoto; lamina membranacea, minute pellucido-perpunctata, glabrata, anguste oblonga vel oblanceolata, 7–16 cm. longa, 2.2–4.2 cm.

lata, apice acuminata, basi acuta, margine crenulato-denticulata; inflorescentia terminalis, paniculata, ca. 3 cm. longa, basi dense lepidota, supra parce lepidota; pedicelli fructiferi 6–8 mm. longi; flores corymbosi, 4-meri, raro 5-meri; sepala triangulari-ovata, 1–1.4 mm. longa, acuta, punctata; fructus subglobosus.

Shrub 1 m., the branchlets slender, obscurely lepidote apically, otherwise essentially glabrous in fruiting specimen; leaves drying blackish, paler beneath, essentially glabrous at maturity except along petiole and midvein beneath, the petioles slender, canaliculate, up to 9 mm. long; leaf blades membranaceous, densely punctate with very small pellucid glands, narrowly oblanceolate or oblanceolate-oblong, 7–16 cm. long, 2.2–4.2 cm. wide, apex acuminate, base acute, the margin inconspicuously crenulate-denticulate; inflorescence terminal, about 3 cm. long, paniculate, with short densely lepidote peduncle, otherwise sparsely and minutely lepidote, the rachis and branches slender; fruiting pedicels 6–8 mm. long; flowers corymbose, 4- or sometimes 5-parted; sepals triangular-ovate, 1–1.4 mm. long, acute, conspicuously punctate mostly with blackish rounded glands; young fruits subglobose.

Colombia: Dept. Meta, along Coño Rosa Blanca, small stream outside of Villavicencio, Sept. 7, 1967, *Joseph H. Kirkbride, Jr. 400* (MO, holotype; LL, fragment and xerox copy), shrub 1 m., fruit red.

In the absence of flowers, its relationship is uncertain, but *A. metensis* belongs in the *A. guianensis* (Aubl.) Mez complex of the subgenus Icacorea. The 4-parted, sometimes 5-parted calyx, and leaves with denticulate margin are features common in this group of taxa.

Ardisia mombachoana Lundell, sp. nov. — Frutex; ramuli glabrati; folia glabra, petiolata, petiolo anguste marginato, 3–7 mm. longo; lamina subcoriacea, lanceolato-elliptica vel oblanceolata, 5–11 cm. longa, 2–4.5 cm. lata, apice subabrupte acuminata, basi rotundata vel acutiuscula, subintegra, subtus reticulata; inflorescentia terminalis, glabra, paniculata, ad 7 cm. longa; pedicelli 3–5 mm. longi; flores corymbosi, 5-meri; sepala ovata, 1.3–1.4 mm. longa, minute punctata, apice obtusa vel rotundata, parce ciliolata; corolla ca. 5 mm. longa; petala basi connata ca. 1 mm., oblongo-elliptica, apice obtusa, asymmetrica, parce punctata; stamina ca. 4 mm. longa; filamenta ca. 1.2 mm. longa; antherae lanceolatae, ca. 3 mm. longae; placenta parva; ovula 16 vel 17.

Shrub, the branchlets rather short and slender, glabrous except for the lepidote apical bud; leaves coriaceous or subcoriaceous, glabrous, inconspicuously punctate, with short narrowly marginate petioles usually less than 7 mm. long; leaves lanceolate-elliptic or oblanceolate, 5–11 cm. long, 2–4.5 cm. wide, the acumen obtusish, base rounded to acutish and decurrent on petiole, essentially entire, reticulate-veined beneath; inflorescence terminal, glabrous, paniculate, rather compact, up to 7 cm. long; pedicels slender but rigid, 3–5 mm. long; flowers corymbose, 5-parted; sepals dextrorse, ovate, up to 1.4 mm. long (boiled), rather thin, conspicuously punctate with mostly small blackish glands, with few marginal cilia; corolla about 5 mm. long with petals connate about 1 mm. at base, the petals thin, oblong-elliptic, punctate with few inconspicuous glands, the apex obtuse, asymmetric; stamens inserted above base of corolla tube, mostly 4 mm. long; filaments slender, up to 1.2 mm. long; anthers

lanceolate, about 3 mm. long, dehiscent by apical pores, the short lobes at base rounded; ovoid ovary with style up to 6 mm. long; ovules 16 or 17, in several series.

Nicaragua: Dept. Granada, W slope of Volcan Mombacho, road and trail above Finca Santa Ana, from reservoir to somewhat above Plan del Flores; disturbed cloud forest below, elfin forest above; elev. ca. 950–1150 m., Oct. 1 1977, *Warren Douglas Stevens 4335* (LL, holotype); same locality, *Stevens 4361* (LL, paratype), shrub 3 m. tall, leaves glossy, inflorescence red, corolla white, anthers yellow; Volcan Mombacho, *Thomas B. Croat 39106* (MO, paratype).

A distinctive taxon, glabrous except for the lepidote terminal buds, which has coriaceous leaves, a compact inflorescence, and thin sepals rather densely punctate with minute blackish glands. Like so many species of the subgenus Icacorea, its delimitation is difficult.

Ardisia novitensis Lundell, sp. nov. — Arbor parva; ramuli graciles, furfuracei; folia petiolata, petiolo 3–5 mm. longo; lamina membranacea, supra glabra, subtus furfuracea, lanceolata vel oblanceolata, 13.5–18 cm. longa, 4–5 cm. lata, apice acuminata, basi acutiuscula, margine denticulata; inflorescentia terminalis, tenuis, paniculata, ca. 10 cm. longa, furfuracea; pedicelli graciles, 5–6.5 mm. longi; flores 5-meri; sepala ovato-triangularia, 1–1.2 mm. longa, acuta; fructus subglobosus, ca. 6 mm. diam.

Small tree, 3 m. tall with slender furfuraceous branchlets, the scales loose, sometimes short-stalked; leaves with short petioles rarely up to 5 mm. long, the petioles furfuraceous beneath; leaf blades thin, nearly glabrous above, lepidote-furfuraceous beneath, lanceolate or oblanceolate, up to 18 cm. long, 5 cm. wide, apex acuminate, base acutish and decurrent on the petioles, punctate with dispersed slightly elevated glands, the margin conspicuously denticulate almost to base, the teeth rather small; inflorescence terminal, with slender rachis and branches, openly paniculate, about 10 cm. long with very short peduncle, furfuraceous, the large scales often stalked; pedicels slender, up to 6.5 mm. long in fruit; flowers 5-parted, corymbose; sepals ovate-triangular, 1–1.2 mm. long, acute, scaly; fruits subglobose, drying about 6 mm. in diameter.

Colombia: Dept. Choco, Municipio de Novita, ladera norte del Cerro Torra, filo al Oeste del Rio Surama, Camino al Alto del Oso, bosque, alt. 500–600 m., Feb. 23, 1977, *E. Forero, A Gentry, A. Sugden & D. Daly 3313* (MO, holotype; LL, fragment and xerox copy); arbolito 3 m., frutos negros.

The stalked scales of the branchlets and infructescence are unique and well-mark the taxon. Its almost sessile thin denticulate leaves are other features of note. In the absence of flowers the relationships of the taxon are not clear.

Ardisia petenensis Lundell, sp. nov. — Arbor parva, glabra; ramuli crassiusculi; folia coriacea, petiolis 1–1.5 cm. longis; lamina decurrente anguste alatis stipitata, basi cuneata, apice obtusa vel rotundata, integra, obovato-elliptica, 10–15 cm. longa, 5–7.5 cm. lata, glabra, perpunctata; inflorescentia glabra, racemoso-paniculata, axillaris vel terminalis; pedicelli 7–12 mm. longi; flores 5-meri; sepala parva, coriacea, perpunctata, ovata, ca. 2.2 mm. longa, minute erosa; corolla ca. 9 mm. longa, intus

aurantiaco-glanduloso-stellata; petala basi connata, perpunctata, apice asymmetrica; filamenta lata, ca. 1 mm. longa; antherae lanceolatae, ca. 5 mm. longae, apice acuminatae et punctatae, dorso nigropunctatae; ovula 29–37.

Shrub or small tree, entirely glabrous, the branchlets rather slender; leaves coriaceous, pallid with marginate petioles up to 1.5 cm. long, mostly shorter; leaf blades punctate above over the entire surface with conspicuous slightly elevated rounded glands, obovate-elliptic, usually less than 15 cm. long, 7.5 cm. wide, cuneate at base, obtuse or rounded at apex; inflorescence glabrous, terminal or axillary, consisting of one to several racemes, usually shorter than leaves; pedicels 7–12 mm. long, accrescent, often reflexed; flowers pink, glabrous; sepals small, united at base, thick, conspicuously punctate over entire surface with mostly small reddish-black glands, broadly ovate, about 2.2 mm. long, acute to rounded at apex, minutely erose, *not ciliolate;* corolla about 9 mm. long, stellate within with orange glandular-papillate eye, the petals conspicuously punctate with large reddish-black rounded to elongate glands, apex asymmetric and notched; filaments broad, short; anthers lanceolate, black-punctate dorsally, connivent, about 5 mm. long, the apex subabruptly acuminate, the sharp acumen black-punctate; ovules 29–37.

Guatemala: Dept. Peten, north shore of Lake Yaxha, in disturbed forest, elev. 500 ft., June 18, 1973, *Thomas B. Croat 24647* (LL, holotype), shrub, 5 m., flowers pinkish, marked within at base with orange, common; same locality and date, *Al Gentry 8301* (LL, paratype); *John D. Dwyer 11241* (MO, paratype).

A. petenensis closely resembles *A. paschalis* Donn. Sm., but differs in its small erose sepals and acuminate anthers. In *A. paschalis* the sepals are nearly twice as large and conspicuously ciliolate, and the anthers are merely acute. Both taxa have leaf blades punctate over the entire surface with conspicuous rounded glands slightly elevated on upper surface.

Ardisia tenuicaulis Lundell, sp. nov. — Frutex; ramuli rufo-lepidoti, glabrati; folia novella parce et minute lepidota, petiolata, petiolo 5–10 mm. longo; lamina subcoriacea, lanceolata vel elliptico-lanceolata, 4–9.5 cm. longa, 1.7–4 cm. lata, apice acuminata, basi acuta, subintegra, prominente substriata et utrinque reticulato-venosa, parce nigropunctata; inflorescentia terminalis, tenuicaulis, paniculata, ad 4 cm. longa, subsessilis, pauciflora, glabra; pedicelli fructiferi ca. 5 mm. longi; flores corymbosi; sepala ovata, acuta, ad 1 mm. longa, nigropunctata; fructus globosus, ca. 7 mm. diam.

Shrub 1 m. tall, the branchlets slender with apical buds and internodes minutely rufous-lepidote at first, glabrous early; leaves minutely and sparsely lepidote at first, mostly on petiole and on midvein beneath, the slender petioles canaliculate, up to 10 mm. long; leaf blades subcoriaceous, lanceolate or elliptic-lanceolate, up to 9.5 cm. long, 4 cm. wide, the apex subabruptly short acuminate, the base acute and decurrent on petiole, the margin subentire, the midvein elevated beneath, narrowly impressed above, the lateral veins numerous, substriate and reticulate, prominent on both surfaces of blade, punctate with dispersed black

glands; inflorescence terminal, glabrous, subsessile, slender and thread-like, up to 4 cm. long, paniculate with several branches; flowers corymbose, few, the slender pedicels of fruits about 5 mm. long; flowers corymbose, few; sepals persisting at base of fruit ovate, acute, up to 1 mm. long, medially black-punctate; fruits drying globose, about 7 mm. in diam., purple-black when ripe.

Panama: Prov. Chiriqui, Fortuna dam site, forest area, 1400–1600 m., Sept. 15, 1977, *J. P. Folsom, R. Dressler & K. Dressler 5561* (MO, holotype; LL, leaf & zerox copy), shrub of 1 meter, fruit nearly spherical, purple-black.

The holotype is a unicate, and inadequate, but a very distinct taxon is represented which can easily be identified by the peculiar leaf venation. The veins are numerous, substriate, reticulate and elevated on both surfaces of blade. Referable to the subgenus Icacorea, it does not resemble any of the known taxa, and flowers are necessary to determine its relationship. It is named for the thread-like inflorescence.

Ardisia tenuis Lundell, Wrightia 4: 149. 1970; Ann. Missouri Bot. Garden 58: 339. 1971.

Panama: Prov. Darien, Cerro Pirre, cloud forest, alt. 2500–4500 ft., Aug. 9–10, 1967, *J. A. Duke & T. S. Elias 13762* (LL, holotype; GH, MO, US, isotypes).

Colombia: Dept. Boyaca, 1932, *Alexander E. Lawrence 114* (MO).

The species is known from several additional collections in Panama, but this is the first record of the taxon from Colombia.

Ardisia Tonii Lundell, sp. nov. — Frutex; ramuli crassiusculi, glabri; folia glabra, petiolis 1.3–2 cm. longis stipitata; lamina chartacea, elliptico-lanceolata, 9–18 cm. longa, 4–8 cm. lata, apice obtusa, basi rotundata, integra, margine dense punctulata, integra; inflorescentia subsessilis, gracilis, flexuosa, glabra, nodosa, bipinnatim racemoso-paniculata; pedicelli graciles, 1–1.3 cm. longi; flores 4- vel 5-meri; sepala imbricata vel dextrorsa, ovato-rotundata, ad 3 mm. longa et lata, ciliolata, dense et minute nigropunctulata, et lineata; fructus subglobosus.

Shrub about 4 m. tall, glabrous with rather slender branchlets; leaves glabrous, with canaliculate petioles 1.3–2 cm. long, the blades chartaceous, lanceolate, widest below or at the middle, rather small, 9–18 cm. long, up to 9 cm. wide, apex obtuse, base rounded, the margin entire, densely punctate with small blackish glands, the blade otherwise appearing eglandular; inflorescence sessile or nearly so, the rachis and branches slender and flexuous, nodose, the panicle of racemes 11–14 cm. long; pedicels slender, up to 1.3 cm. long; flowers 4- or 5-parted; sepals thin, imbricate or dextrorse, ovate-rounded, large, up to 3 mm. long and wide, subequal, ciliolate, conspicuously puncticulate with small blackish glands and lineate medially below, not glandular-papillate within; fruits subglobose, drying up to 1.2 cm. in diameter.

Mexico: Chiapas, Municipio of Ocozocoautla de Espinosa, steep heavily wooded slope on the southwest side of the Presa de Malpaso, elev. 2200 ft., March 2, 1968, *Alush Shilom Ton 3785* (LL, holotype; F, MICH, isotypes), shrub, 12 ft. tall.

The collection is in fruit, and flowers are needed to determine its relationships. It appears to be another taxon in the *A. paschalis* Donn. Sm. complex. *A. Tonii* differs from all of these in having elliptic-lanceolate leaves rounded at base, and in its slender flexuous nearly sessile inflorescences. The thin large rounded sepals are conspicuously puncticulate, and lineate medially, with blackish glands. The 4- or 5-parted flowers are unusual in species of northern Middle America but common in taxa of South America.

Ardisia unguiensis Lundell, sp. nov. — Arbor; ramuli crassiusculi, adpresse-lepidoti; folia coriacea, supra glabra, subtus dense lepidota, petiolata, petiolo 4–7 mm. longo, canaliculato; lamina oblanceolata, 7.5–12.5 cm. longa, 2.5–4 cm. lata, apice subabrupte acuminata, basi cuneata, integra; inflorescentia terminalis, ad 12 cm. longa, paniculata, pauciramosa, lepidota; flores 5-meri, subcorymbosi; pedicelli ad 3 mm. longi; sepala dextrorsa, coriacea, suborbicularia, inaequalia, 1.6–2 mm. longa, subauriculata, fimbriata, nigropunctata; corolla ca. 4.5 mm. longa; petala basi connata ca. 1 mm., anguste elliptica, acuta, dense nigropunctata; stamina ca. 2.4 mm. longa; filamenta ca. 0.7 mm. longa; antherae oblongo-ellipticae, ca. 2 mm. longae, apiculatae; ovarium globosum, glabrum; stylus ca. 3.5 mm. longus; ovula parva, ca. 48, pluriseriata.

Tree, 15 m. tall; branchlets rather stout, closely appressed lepidote; leaves coriaceous, smooth with inconspicuous venation, glabrous above, densely lepidote beneath with closely appressed scales, petiolate, the petioles canaliculate, short, up to 7 mm. long; leaf blades oblanceolate, up to 12.5 cm. long, 4 cm. wide, mostly smaller, apex rather abruptly short acuminate with obtusish acumen, base cuneate and decurrent on petiole, margin entire; inflorescence terminal, paniculate, up to 12 cm. long, with short peduncle, the rachis and branches zigzag, lepidote; flowers 5-parted, subcorymbose; pedicels often reflexed, mostly about 2.5 mm. long, sometimes up to 3 mm.; sepals dextrorse, coriaceous, depressed-orbicular, 1.6–2 mm. long, subauriculate on the overlapped margin, the margin hyaline, fimbriate on the inner auriculate edge, densely punctate with small blackish glands; corolla about 4.5 mm. long, the petals connate into a narrow constricted tube 1 mm. long, the lobes narrowly elliptic, thickish, acute, densely punctate with blackish glands; stamens about 2.4 mm. long, borne at apex of tube; filaments short and slender, about 0.7 mm. long; anthers attached above base, broadly oblong-elliptic, about 2 mm. long, apiculate, longitudinally dehiscent; ovary globose, the slender style about 3.5 mm. long; ovules very small, 48 in the placenta dissected, pluriseriate.

Colombia: Dept. Choco, Serrania del Darien, W of Unguia near Panama border, alt. 550–1000 m., July 25, 1976, *Al Gentry, Henry Leon & Luis Forero 17032* (LL, holotype; MO, isotype), tree 15 m., flowers and inflorescence lavender.

The zigzag rachis and branches of the inflorescence, the petals connate and constricted at base into a narrow tube, the stamens borne at apex of tube, and the short broadly oblong-elliptic anthers longitudinally dehiscent well-mark the taxon.

Ardisia Woodsonii Lundell, Ann. Missouri Bot. Gard. 28: 457. 1941; *A. Davidsei* Lundell, Wrightia 5: 282. 1976.

Panama: Prov. Chiriqui, vicinity of Finca Lerida, alt. 1750 m., July 7–11, 1940, *R. E. Woodson, Jr. & R. W. Shery 230* (MICH, holotype; LL, fragment), tree 8 m., berries black-purple; ca. 9 km. by road WNW of Boquete, montane forest at lower limit of oaks, on steep slope, elev. 1870 m., Nov. 21, 1975, *G. Davidse & W. G. D'Arcy 10299* (LL, holotype of *A. Davidsei*), small tree 4 m. tall, petals white, anthers yellow; Volcan Chiriqui, above Boquete, on roadside, Nov. 19, 1975, *D'Arcy 9785* (LL), flowers pinkish, shrub 3 m. tall; E slope of Volcan de Chiriqui (Baru), WNW of Boquete, elev. 1900–2000 m., Nov. 19, 1975, *Davidse & D'Arcy 10151* (LL), small understory tree 4 m. tall, corolla white with pink tinge, anthers yellow.

In these collections the leaves dry grayish above, and have a brownish hue beneath.

A. Woodsonii was described from fruiting material. *A. Davidsei,* collected three times in flower, matches the earlier type of *A. Woodsonii* in leaf and calyx features, and most certainly is a synonym.

I erroneously placed *A. Woodsonii* in synonymy under *A. Maxonii* Standl. in the treatment of the Myrsinaceae in the *Flora of Panama* (Ann. Missouri Bot. Gard. 58: 343. 1971). The two are amply distinct differing markedly in flower features.

Conomorpha loretensis Lundell, sp. nov. — Frutex; ramuli parce lepidoti; folia petiolis 8–11 mm. longis stipitata; lamina subcoriacea, integra, anguste elliptica, lanceolata vel oblanceolata, 7–11.5 cm. longa, 1.6–3.3 cm. lata, apice acuta vel acuminata, basi acuta, subtus pallida, parce lepidota; inflorescentia axillaris, subspicata, ad 3.3 cm. longa, parce lepidota et puberula; pedicelli subnulli, crassi, 0.3–0.6 mm. longi; flores 4-meri; calyx 1–1.4 mm. longus; sepala libera, acuminata, ad 1.2 mm. longa, parce ciliolata, aurantiaco-punctata; corolla 2 mm. longa, aurantiaco-punctata, intus papillata; petala basi coalita, lobis ovatis, acutis, imbricatis; stamina petalis breviora; ovarium glabrum.

Shrub up to 1 m. tall, the branchlets rather thick, sparsely lepidote with small reddish scales; leaves alternate or subverticillate, not crowded at apex, the slender petioles up to 11 mm. long; leaf blades subcoriaceous, entire, paler beneath and lepidote with small scattered reddish scales, the blades decurrent on petioles, narrowly elliptic-lanceolate or oblanceolate, up to 11.5 cm. long, 3.3 cm. wide, apex acute or acuminate, base acute, the venation rather obscure and reticulate; inflorescences axillary, subspicate, up to 3.3 cm. long, the rachis sparsely lepidote and puberulent; pedicels short, thick, 0.3–0.6 mm. long; flowers 4-parted; sepals essentially free to base, narrowly triangular or lanceolate-triangular, unequal, up to 1.2 mm. long, acuminate, orange-punctate, sparingly ciliolate; corolla 2 mm. long, orange-punctate, papillose within, the petals united one-third at base, ovate, acute, the two outer pair enclose the inner pair; stamens shorter than petals, the thick filaments about 1 mm. long; ovary glabrous, apparently abortive, the style short.

Peru: Loreto, Quistococha, vicinity of Iquitos, scrubby forest on white sand, alt. ca. 140 m., Nov. 18, 1977, *Al Gentry 20763* (LL, holotype), shrub, 0.2 m., flowers white; Loreto, Laguna Quistacocha, ca. 15 km. SW of Iquitos, July 8, 1977, *J. C. Solomon 3446* (LL, paratype), shrub, ca. 1 m.

C. loretensis is a well-marked unisexual species of uncertain affinity.

Cybianthus bracteolatus Lundell, sp. nov. — Frutex; ramuli graciles; folia petiolis usque ad 10 mm. longis stipitata; lamina chartacea anguste elliptica vel oblanceolata, 11–18 cm. longa, 4–5.5 cm. lata, apice acuminata, basi acuta, integra; inflorescentia racemosa, fasciculata, dense bracteolata, minute et dense rufo-puberula, ad 2 cm. longa, apice densiflora; pedicelli ad 4 mm. longi; flores 4-meri; sepala imbricata, lanceolata, 1.2–1.4 mm. longa, acuminata, aurantiaco-punctata; petala oblongo-lanceolata, 2–2.5 mm. longa, basi connata, imbricata, obtusa, aurantiaco-punctata; stamina 2–3 mm. longa; filamenta 1–2 mm. longa, basi affixa; antherae oblongo-ellipticae, ca. 1 mm. longae, dorso minute punctatae; ovarium glabrum; ovula 3.

Arborescent shrub, 1.5–2 m. tall, the branchlets rather slender, obscurely and minutely papillate-puberulent at first with reddish indument; leaves essentially glabrous except for indument like the branchlets along the midvein beneath, with rather obscure primary veins, punctate, chartaceous; petioles up to 10 mm. long, mostly shorter; leaf blades entire, narrowly elliptic or oblanceolate, up to 18 cm. long, 5.5 cm. wide, subabruptly acuminate apically, acute at base; inflorescences reddish-puberulent, racemose, fasciculate in leaf axils and on old wood, dense, the racemes up to 2 cm. long, flowered apically, the basal one-half to two-thirds of rachis covered by linear incurved bractlets up to 1.4 mm. long; pedicels slender, up to 4 mm. long at anthesis, mostly shorter, subtended by linear bractlet shorter than pedicel; flowers 4-parted; sepals imbricate, triangular-lanceolate, 1.2–1.4 mm. long, acuminate, puberulent, conspicuously orange-punctate; petals thin, imbricate, oblong-lanceolate, 2–2.5 mm. long, connate at base, obtusish, conspicuously orange-punctate, the medial glands lineate; stamens 2–3 mm. long, longer than petals after anthesis, filaments slender, free, attached at base of corolla tube, 1–2 mm. long; anthers oblong-elliptic, about 1 mm. long, attached above the shallowly cordate base, obtuse-rounded at apex, dehiscent longitudinally; ovary glabrous with slender style exceeding ovary; ovules 3, erect.

Peru: Dept. Amazonas, al lado de Huampami, in forest, alt. 800–850 ft., July 31, 1974, *Rubio Kayap 1409* (LL, holotype), 2 m., flowers white; trail E of Huampami to Shaim, alt. 600–1750 ft., August 1, 1974, *Brent Berlin 1900* (LL, paratype), tree, 1.5 m., fls. white, enclosed in light purple bracts, numerous dense clusters on main stem, *"mun ukuskit."*

Cybianthus bracteolatus is a well-marked taxon, notable for its conspicuously bracteolate fasciculate racemes mostly on old wood, long free filaments attached at base of corolla tube, and large oblong-elliptic anthers dehiscent longitudinally. Its 4-parted flowers, apparently unisexual, establish its generic relationship.

Another collection from the Huampami region, *Berlin 65* (MO) appears to be referable to this taxon. It is a tree up to 10 m. tall with elliptic leaves up to 25 cm. long and 8.5 cm. wide, considerably more robust than the type.

Geissanthus Fallenae Lundell, sp. nov. — Arbor parva; ramuli novelli lepidoti; folia petiolis 10–15 mm. longis stipitata; lamina membranacea,

crenulato-denticulata, oblanceolata, ad 22 cm. longa, 7 cm. lata, apice acuminata, basi cuneata, asymmetrica, subtus parce et minute lepidota; inflorescentia terminalis, pyramidalis, ad 18 cm. longa, lepidota; flores 5-meri, subspicati, ca. 4 mm. longi; pedicelli subnulli, ad 0.6 mm. longi, lepidoti; calyx lepidotus, ca. 1.5 mm. longus, in 4 vel 5 lobulos irregulares ruptus, parce punctatus; petala 5, valvata, basi connata, reflexa, anguste oblonga, ca. 3.5 mm. longa, apice obtusa, obscure punctata; stamina 5, basi corollae affixa; filamenta ca. 4 mm. longa; antherae lanceolato-oblongae, ca. 2 mm. longae; ovarium glabrum, stigmate capitulato.

Small tree, 4 m. tall, the branchlets rather slender, sparsely and minutely lepidote at apex; leaves large, the petioles up to 15 mm. long, canaliculate, lepidote; leaf blades thin, membranaceous, crenulate-denticulate, oblanceolate, up to 22 cm. long, 7 cm. wide, apex acuminate, base cuneate and decurrent on petiole, asymmetric, paler and sparsely lepidote beneath with minute scales, glabrous above, primary lateral veins slender but elevated beneath, 15–18 pairs; inflorescence terminal, large, multiflowered, pyramidal, minutely lepidote, 18 cm. long, the flowers in tripinnately paniculate spikes with pedicels up to 0.6 mm. long; flowers, 5-parted, 4 mm. long in mature buds; calyx lepidote, about 1.5 mm. long, rupturing to middle into 4 or 5 irregular lobes, inconspicuously and sparsely punctate; petals 5, rather thick, valvate, oblong-linear, at anthesis about 3.5 mm. long, connate at base, reflexed, inconspicuously punctate, the apex obtuse; stamens 5, attached at base of corolla tube; filaments slender, about 4 mm. long at anthesis; anthers versatile, lanceolate-oblong, about 2 mm. long in mature buds, lobed at base, not punctate; ovary glabrous, style slender, with small rounded stigma; placenta apparently abortive, the ovules few (3?).

Ecuador: Prov. Los Rios or Pichincha, on path following ridge line at El Centinela at crest of Montanas Lla on road from Patricia Pilar to 24 de Mayo at km. 12, elev. 600 m., July 22, 1979, *C. H. Dodson, P. Morgan & M. Fallen 8497* (MO, holotype; LL, fragment), small tree to 4 m. tall, flowers white.

The holotype tree appears to be staminate as evidenced by the elongated filaments and the abortive placenta. With unisexual flowers, and inadequate collections of the species, relationships are difficult to delimit. Diverse elements have been placed in this very distinct genus.

Gentlea costaricensis Lundell, nom. nov. *Ardisia minor* Standley, Journ. Washington Acad. Sci. 17: 522. 1927, non King & Gamble, Journ. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 74: 146. 1906. *Gentlea minor* (Standley) Lundell, Wrightia 3: 104. 1964, illegitimate name.

The small usually orbicular sepals mostly rounded at apex, and leaves with scattered large glands scattered over the entire length of blade appear to separate this species from the closely related, *G. Austin-Smithii* (Lundell) Lundell. The latter has mostly lanceolate sepals acuminate at apex, and leaves with glands in apical third of blade.

Parathesis congesta Lundell, sp. nov. — Frutex, ramulis crassiusculis, rufo-tomentellis; folia petiolis 1–1.5 cm. longis stipitata; lamina subchartacea, oblanceolato-oblonga, 18–23 cm. longa, 5.5–7 cm. lata, apice acuminata, basi acuminata, undulata, supra glabrata, subtus novella

adpresse stellato-pubescentia, pellucido-punctata; inflorescentia terminalis, paniculata, ad 20 cm. longa, rufo-tomentella; pedicelli ad 9 mm. longi; flores dense corymbosi, minute tomentelli, ante anthesin ca. 5 mm. longi; sepala triangularia, 1–1.2 mm. longa, acuminata, nigropunctata; petala lineari-lanceolata, usque ad 5 mm. longa, lineato-picta, intus villosa; stamina ca. 4 mm. longa; filamenta 1–1.3 mm. longa; antherae erectae, lineari-lanceolatae, ca. 3 mm. longae, acutae, nigropunctatae; ovarium glabrum vel parce hirtellum; ovula 7 vel 8, uniseriata.

Probably a shrub, the branchlets rather stout, finely and inconspicuously tomentose with reddish branched trichomes; leaves large and thin with undulate margins, the petioles rather stout, up to 1.5 cm. long, canaliculate, pubescent beneath like the stems; leaf blades oblanceolate-oblong, widest above the middle, up to 23 cm. long, 7 cm. wide, apex short acuminate, base acuminate and decurrent on the petiole, glabrous above at maturity but with remnants of appressed pubescence, at first pubescent beneath with very fine closely appressed stellate trichomes on the blade, pellucid-punctate; inflorescence terminal, up to 20 cm. long, the panicle open and with slender branches, pubescent with minute reddish tomentum of mostly branched hairs; pedicels slender, accrescent, up to 9 mm. long; flowers numerous, 5- or rarely 6-parted, corymbose, the corymbs congested, the buds and flowers at anthesis about 5 mm. long, minutely pubescent; sepals narrowly triangular, mostly about 1 mm. long, acuminate, with scattered black glands; petals linear-lanceolate, about 5 mm. long, linear-punctate, villous within; stamens about 4 mm. long, the filaments up to 1.3 mm. long, the anthers erect, slender, about 3 mm. long, acute, densely punctate with black glands dorsally; ovary glabrous, rarely with a few scattered hairs at base of style; ovules 7 or 8, uniseriate.

El Salvador: Dept. Ahuachapan, Finca San Benito, April 3, 1979, *Jose Miguel Chinchilla s.n.* (LL, holotype), *"amarante silvestre."*

P. congesta appears to be closely related to *P. columnaris* Lundell, differing in its larger undulate-margined leaves and smaller flowers. The flowers, 5- or rarely 6-parted, are numerous and congested in the corymbs on very slender pedicels. The two taxa differ more in aspect than the descriptions can portray.

Parathesis microcalyx Donn. Sm., Bot. Gaz. 48: 295. 1909; Lundell, Contr. Texas Research Foundation, 5: 67, fig. 20. 1966.

Colombia: Antioquia, Municipio de Anori, Buenos Aires, 4 km. from Providencia, flooded river bank, forest edge, alt. 500 m., Dec. 11, 1972, *Djaja D. Soejarto & Enrique Renteria 3607* (MO), shrub, lower leaf surface gray-green, mature fruits black; Municipio de Anori, Tirana Creek, at the confluence with Rio Anori, 5 km. from Providencia, up-river, secondary forest, alt. 400–900 m., Sept. 6–12, 1973, *Soejarto et al. 4265* (MO), shrub, fruits purplish-red.

The first records of the species for South America, both collections are in fruit, and flowers are needed to substantiate the identification. The leaves are smaller than those in Central American collections, but the indument, inflorescence and calyx of the Colombian material closely matches these features in specimens from Panama, Costa Rica and Nicaragua.

Parathesis zuliana Lundell, sp. nov. — Frutex; ramuli crassiusculi; folia petiolata, petiolo 1–1.5 cm. longo, canaliculato; lamina chartacea, elliptico-oblanceolata, 10–18 cm. longa, 4–7 cm. lata, apice subabrupte acuminata, basi acuta, margine subintegra, subtus minute peradpresse stellato-pubescentia; inflorescentia terminalis, paniculata, ca. 9 cm. longa, 12 cm. lata, minute rufo-pubescentia; flores 5-meri, corymbosi; pedicelli 3–5 mm. longi, minute stellato-puberuli; sepala anguste triangularia, acuminata, ad 1.4 mm. longa, minute stellato-puberula; petala ca. 4.5 mm. longa, lanceolata, nigropunctata; stamina ca. 3 mm. longa; filamenta crassa, glabra, ca. 1.6 mm. longa; antherae anguste lanceolatae, ca. 2 mm. longae, dorso nigropunctatae; ovarium apice stellato-hirtellum, stylo ca. 4.5 mm. longo; ovula 6.

Shrub with rather stout branchlets, the pubescence minute, closely appressed, reddish at first; leaves with deeply canaliculate petioles up to 1.5 cm. long; leaf blades chartaceous, elliptic-oblanceolate, up to 18 cm. long, 7 cm. wide, rather abruptly short acuminate at apex, acute and attenuate at base, the margin subentire, pubescent beneath at first with very fine reddish closely appressed stellate hairs, glabrate, the venation and punctation obscure; inflorescence terminal, tripinnately paniculate, about 9 cm. long, wider than long, minutely reddish-puberulent; flowers 5-parted, corymbose, stellate-puberulent; pedicels up to 5 mm. long; sepals narrowly triangular, acuminate, up to 1.4 mm. long, punctate; petals about 4.5 mm. long, lanceolate, tapering to the narrow apex, villous within, stellate-puberulent on outer surface, black-punctate; stamens about 3 mm. long; filaments stout, glabrous, about 1.6 mm. long; anthers narrowly lanceolate, dorsifixed fully one-third above base, 2 mm. long, conspicuously punctate dorsally with large black glands; ovary stellate-hirtellous apically and at base of style, the style about 4.5 mm. long; ovules 6, uniseriate.

Venezuela: Estado Zulia, Sierra de Perija, El Paramito, alt. 880 m., July 1975, *Francisco Deslascio Chitty & J. Benkowski 3000* (LL, holotype), arbusto.

The taxon has affinity to *P. oblanceolata* Lundell of Guatemala. *P. zuliana* differs in the obscure venation of the leaves, inconspicuous punctation, much finer inconspicuous pubescence, and in its inflorescence which is wider than long and rather compact. In *P. oblanceolata* the veins of the leaves are reticulate on lower surface, and the black punctation is conspicuous. The inflorescence of *P. oblanceolata* is narrow, interrupted and leafy below, and the reddish stellate pubescence is coarser and denser. The flowers of the two taxa are quite similar.

Rapanea peruviana Lundell, sp. nov. — Arbor parva; ramuli rufo-tomentelli, graciles; folia parva, petiolis 3–4.5 mm. longis stipitata; lamina chartacea, elliptica vel obovato-elliptica, 1.5–3 cm. longa, ad 1.5 cm. lata, apice rotundata, basi acuta, ciliata, revoluta, minute punctata; flores 4- vel 5-meri; pedicelli 1.5–2 mm. longi, crassiusculi; calyx ca. 2 mm. longus; sepala basi connata, lobis ciliolatis, parce punctatis, ovato-oblongis, apice rotundatis; corolla ca. 4.5 mm. longa; petala basi connata, oblonga, obtusa, ciliolata; antherae ovato-ellipticae, crassae, 2 mm. longae, punctatae, apiculatae; flores pistillati ignoti.

Tree, 4 m. tall, the branchlets slender, with sordid red tomentum, the

indument appearing scaly and with unequal short hairs; leaves small, with rather slender petioles up to 4.5 mm. long and pubescent like the branchlets; leaf blades chartaceous, pallid or whitish beneath and glabrous except along midvein and margin, blackish and glossy above with impressed midvein and veins, the margin ciliate and revolute, the blades elliptic or obovate-elliptic, up to 3 cm. long, 1.5 cm. wide, apex obtuse-rounded or rounded, base acute or acutish, punctate with small blackish glands, these dense along the margin; staminate flowers crowded in the leaf axils; pedicels short, usually less than 2 mm. long; flowers 4- or 5-parted; calyx about 2 mm. long, with thin punctate oblongish ciliolate lobes rounded at apex; corolla about 4.5 mm. long with oblongish petals connate at base, ciliolate, obtuse at apex, punctate with rather conspicuous glands, mostly marginal; anthers attached to petals, thick and broadly ovate-elliptic, 2 mm. long, punctate dorsally in a medial line, prominently apiculate; pistillate flowers unknown.

Peru: Cuzco, Tres Cruces, upper edge of Parque Nacional de Manu, 1–13 km. NW of Paucartambo-Pilcopata Road, 3330–3500 m., puna and upper edge of montane forest, June 29, 1978. *A. Gentry, M. Dillon, J. Aronson & P. Berry 23478* (LL, holotype), tree 4 m., flowers cream.

Rapanea dependens (Ruiz & Pavon) Mez and the other small-leaved taxa of South America are poorly known, but *R. peruviana* appears to be distinctive. *R. dependens* var. *pentandra* (Cuatr.) Cuatr. of Colombia (Rev. Acad. Colomb. Cienc. 8: 324. 1951) may be the closest related taxon to *R. peruviana*.

Weigeltia Kayapii Lundell, sp. nov. — Fruticulus simplex apice comatim foliosus; folia petiolis percrassis, 1–2 cm. longis stipitata; lamina chartacea, obovato-elliptica, ad 40 cm. longa, 18 cm. lata, apice acuta. basi attenuata, supra glabra, subtus parce et minute rufo-papillosa, integra; inflorescentia multiflora, paniculata, usque ad 7 cm. longa, dense et minute rufo-papillosa; pedicelli fructiferi crassi ad 2 mm. longi; flores pistillati 4-meri, subsessiles, rufo-papillosi; sepala triangularia, ca. 1 mm. longa; petala anguste triangularia, ca. 1.6 mm. longa; ovarium papillosum; stylus crassus, ca. 1.8 mm. longus; stigmate discoideo; placenta uniseriatim pauciovulata; fructus globosus, ca. 7 mm. diam.

Shrub or subshrub, up to 1 m. tall with unbranched short thick stem; leaves large, crowded at apex of stem, with thick marginate petioles up to 2 cm. long; leaf blades chartaceous, with elevated primary veins on lower surface, 8–10 pairs, glabrous above, sparsely and minutely rufous-papillose below mostly along midvein and primary veins, the blades obovate-elliptic, up to 40 cm. long, 18 cm. wide, acute at apex, attenuate to the decurrent base, margin entire; inflorescences apparently terminal, paniculate, up to 7 cm. long, densely rufous-papillose; flowers unisexual, 4-parted, glomerate, numerous, crowded, sessile or nearly so, the pedicels of fruits thick, up to 2 mm. long; sepals triangular, about 1 mm. long in pistillate flowers, the narrowly triangular petals about 1.6 mm. long; stamens in staminate flowers with long slender filaments attached to petals almost to middle, free above; anthers subglobose, very small, wider than long, emarginate; ovary papillose; style thick, about 1.8 mm. long; stigma large, apparently discoid; ovules 2; dry fruits globose, about 7 mm. in diameter.

Peru: Dept. Amazonas, Camino de chichijam, entsa., in forest, alt. 1050 ft., May 2, 1973, *Rubio Kayap 723* (MO, holotype; LL, fragment and xerox copy), shrub 1 m., fruit yellow; Quebrada chigquishinuk, in forest, alt. 710 ft., April 10, 1973, *Ernesto Ancuash 211* (MO, paratype; LL, fragment and xerox copy), shrub, 4 cm., fruits yellow red; creek running into Nahim, which runs into the Huampami, Rio Cenepa, trail-side 1 days walk from Huampami to Shaim, alt. 1800 ft., Nov. 27, 1972, *Brent Berlin 393* (MO, staminate paratype; LL, fragment and xerox copy), herb, short terrestrial, fls. small light purple-pink along several succulent spikes arising from center of plant.

STUDIES OF AMERICAN PLANTS – XIX

Cyrus Longworth Lundell

NYCTAGINACEAE

Guapira Witsbergeri Lundell, sp. nov. – Arbor parva, glabra; ramuli graciles; folia glabra, parva, petiolata, petiolis 3–8 mm. longis; lamina nigra, obovata vel elliptica, 2.5–5.5 cm. longa, 1–2.6 cm. lata, apice obtusa vel subacuminata, basi rotundata vel acutiuscula; inflorescentia parva, subglabra, pedunculata, 3–5.6 cm. longa; perianthium infundibulare, extus glabrum; stamina 6, ca. 8 mm. longa; ovarium stipitatum, anguste ellipticum, glabrum.

Small glabrous tree with slender branchlets, all parts drying blackish; leaves small, glabrous, with slender petioles up to 8 mm. long; leaf blades thin, subchartaceous, obovate or elliptic, 2.5–5.5 cm. long, 1–2.6 cm. wide, apex obtuse or subacuminate, base rounded or abruptly acutish; inflorescence small, up to 5.6 cm. long including slender peduncle up to 3.5 cm. long, the branchlets minutely and obscurely puberulent with appressed hairs, otherwise glabrous; bractlets subtending staminate flowers linear, 0.5–1 mm. long; perianth funnel-shaped, 4 mm. long, the small teeth puberulent, otherwise glabrous externally; stamens 6, exserted, about 8 mm. long, slender; abortive ovary narrowly elliptic, stipitate.

El Salvador: Dept. Ahuachapan, Finca El Imposible, June 7, 1979, *Jose Hugo Castro s.n.* (LL, holotype), *"siete camisas."* Dept. Ahuachapan, Finca San Benito, alt. ca. 900 m., May 14, 1979, *Dennis Witsberger 614* (LL, paratype), small tree, *"siete camisas."*

The paratype bears immature small narrowly ovoid glabrous fruits. *G. Witsbergeri* resembles *G. linearibracteata* (Heimerl) Lundell, but differs in its glabrous branchlets, smaller glabrous perianth as well as other features.

STAPHYLEACEAE

Turpinia Jimenezii Lundell, sp. nov. – Arbor parva; folia imparipinnata, 5–7-foliolata; foliola membranacea, basi minute puberula, elliptica vel ovato-elliptica, acuta vel subacuminata, crenulata; inflorescentia paniculata, minute puberula, multiflora; pedicelli minute puberuli; flores 2.5–3 mm. longi; sepala 5, inaequalia; petala 5, obovata, leviter unguiculata.

Tree 10–15 m. tall, the stems essentially glabrous; leaves odd-pinnate, large, up to 30 cm. long, with 5–7 leaflets with petiolules 2–4 mm. long; leaf blades membranaceous, minutely puberulent at base on both surfaces, elliptic or ovate-elliptic, up to 13.5 cm. long, 6 cm. wide, primary lateral veins 5 or 6, slender, widely ascending, the margin crenulate, apex acute or short acuminate, base inaequilateral, acutish; inflorescence terminal, large, paniculate, exceeding the leaves, openly branched, minutely puberulent; pedicels puberulent, 1.5–2.7 mm. long; flowers small, 2.5–3 mm. long; sepals 5, oblongish, unequal, obscurely puberulent; petals 5, obovate, thin, slightly unguiculate; stamens equalling petals; ovary glabrous, the styles 3.

Costa Rica: Borde de Rio Reventazon, Turrialba, alt. 500–600 m., July 13, 1965, *Alfonso Jimenez M. 3307* (LL, holotype), arbol 10–15 m., fls. blancas.

T. Jimenezii is closely related to *T. occidentalis* (Sw.) G. Don, differing in its minute flowers, and the puberulent leaflets, inflorescence, and sepals. The sepals are often less than 1.5 mm. long.

Turpinia paucijuga Lundell var. **guatemalensis** Lundell, var. nov.—Arbor parva; ramuli graciles, glabri; foliola glabra, sessilis, oblonga, elliptica vel oblanceolata, apice subacuminata, basi acuta, coriacea, minute crenulato-serrulata, petiolata, petiolo 3–9 mm. longo; inflorescentia axillaris et terminalis, thyrsiformis, pauciflora, parce puberula; sepala oblongo-lanceolata vel oblongo-elliptica, 3–4.5 mm. longa, ciliolata; petala hyalina, anguste obovata, ca. 4.5 mm. longa; stamina ca. 5.5 mm. longa; ovarium glabrum; stylus 3.

Slender tree up to 10 m. tall, the branchlets slender, glabrous, drying blackish; leaves unifoliate, with firm petioles usually less than 1 cm. long, sometimes up to 2 cm. long; leaflets sessile or nearly so, firmly coriaceous, glabrous, oblong, elliptic or oblanceolate, 4.5–12 cm. long, 2–5 cm. wide, mostly smaller, apex short acuminate or acute, base acute, the margin crenulate-serrulate, the primary veins elevated beneath; inflorescences axillary and terminal, thyrsiform, small, 2–8.5 cm. long, minutely puberulent at first; pedicels up to 7 mm. long (post anthesis); sepals 5, oblong-lanceolate or oblong-elliptic, unequal, 3–4.5 mm. long, ciliolate; petals unguiculate, hyaline, narrowly obovate, about 4.5 mm. long, ciliolate; stamens about 5.5 mm. long with ovate anthers about 1.4 mm. long; ovary glabrous; styles 3, elongate.

Guatemala: Dept. Baja Verapaz, Niño Perdido, in high forest, on San Jose Road, May 17, 1977, *C. L. Lundell & Elias Contreras 20895* (LL, holotype); tree, 20 ft. high, 3 in. diam. There is a series of collections from Union Barrios and Niño Perdido, unfortunately all post anthesis like the type.

The small rigidly coriaceous unifoliate leaves, short petioles, small axillary and terminal thyrsiform inflorescences and elongated pedicels distinguish the variety.

T. paucijuga var. *guatemalensis*, although it has unifoliate leaves, does not appear to be closely related to the unifoliate *T. insignis* (H.B.K.) Tulasne. I interpret *T. insignis* as represented by *F. Ventura A. 8142* (LL) from Veracruz.

MYRTACEAE

Eugenia pusilana Lundell, sp. nov. – Arbor, glabra; folia glabra, petiolata, petiolo 3–6 mm. longo; lamina chartacea, ovata, 4–7 cm. longa, usque ad 3.5 cm. lata, basi rotundata vel acutiuscula, apice breviacuminata, acumine obtuso, venis utroque ca. 7; racemis abbreviatis, 0.5–2 mm. longis, longe pedicellatis; bracteolis ovatis, 0.4–0.5 mm. longis, persistentibus, distinctis, minute ciliolatis; calycis lobis rigidis, glabris, chartaceis, ad 2.5 mm. longis et latis; disco ca. 2.4 mm. lato.

A tree up to 12 m. tall, entirely glabrous except for the ciliolate bractlets at base of pedicels, and the ciliolate bracteoles at base of hypanthium; slender branchlets compressed at nodes; flowers few; racemes very short, up to 2 mm. long in fruit; pedicels slender, rigid, up to 1 cm. long; bracteoles free, small, ovate, up to 0.5 mm. long, persistent; fruits globose, small, not stipitate, up to 6 mm. in diameter, crowned by the persistent calyx lobes, the lobes glabrous, rounded, cucullate; disks up to 2.4 mm. wide.

Guatemala: Dept. Peten, La Cumbre, south of km. 141 of Cadenas Road, in *zapotal* on top of hill, Sept. 12, 1976, *C. L. Lundell & Elias Contreras 20343* (LL, holotype; UTD, isotype), tree, 30 ft. high, 4 in. diam.; La Cumbre, on old Pusila road about 3 km., in *zapotal* on top of hill, July 10, 1976. *Lundell & Contreras 20007* (LL, UTD, paratypes). Dept. Alta Verapaz, Chahal, El Mago, in *zapotal* on top of rocky hill, 1.5 km. north, Oct. 27, 1968, *Contreras 8025* (LL, paratype), tree, 35 ft. high, 5 in. diam., "*guayabillo*."

E. pusilana is similar in appearance to *E. brevistipitata* Lundell of the same area. The leaves of the latter have the acumen narrowed at base and dactylose, entirely different in appearance from the acumen of *E. pusilana*. While *E. pusilana* is glabrous, *E. brevistipitata* is finely pubescent. Fruits of *E. pusilana* are not stipitate.

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